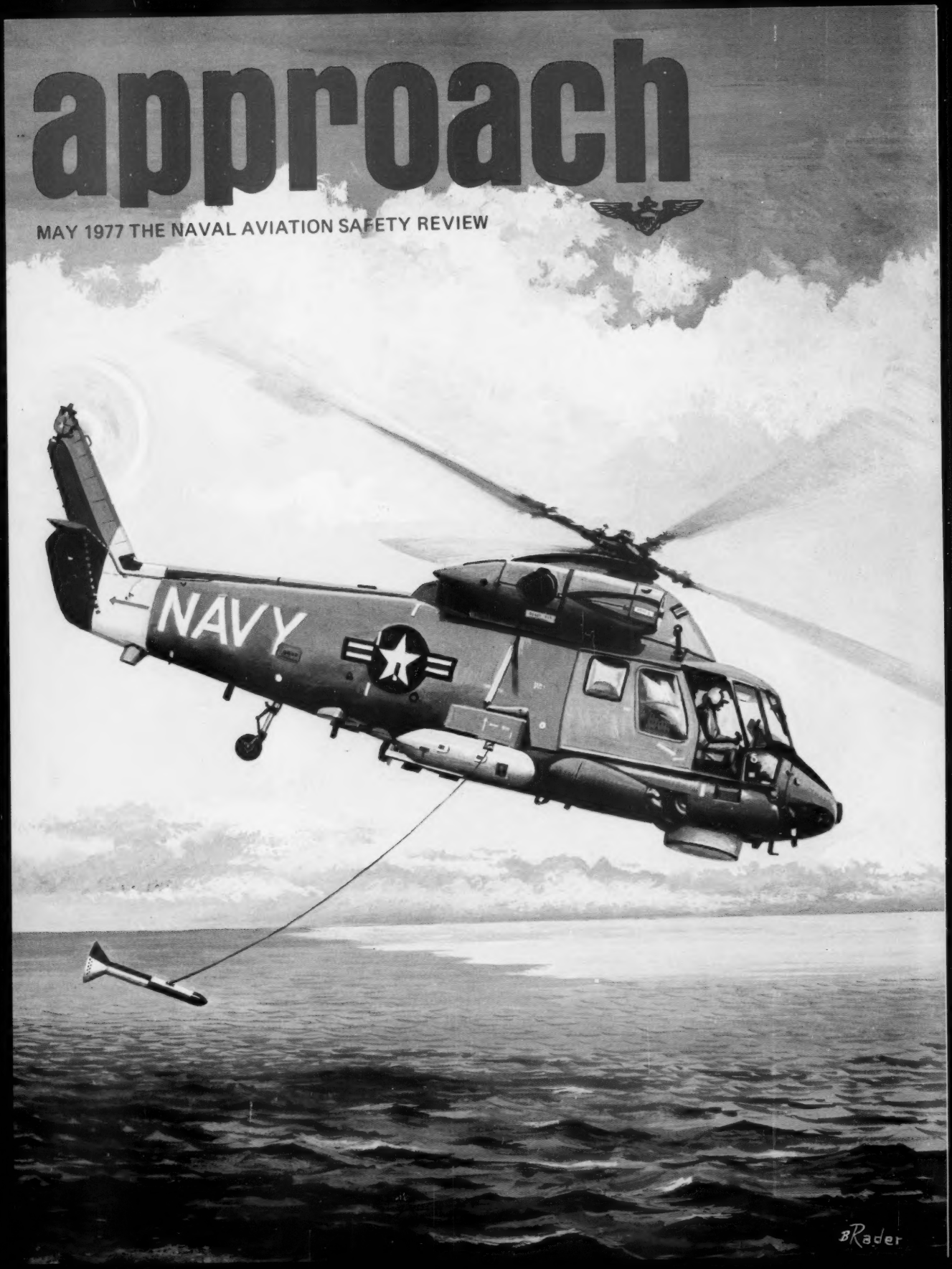
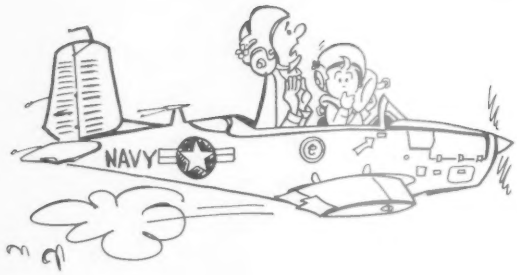
approach

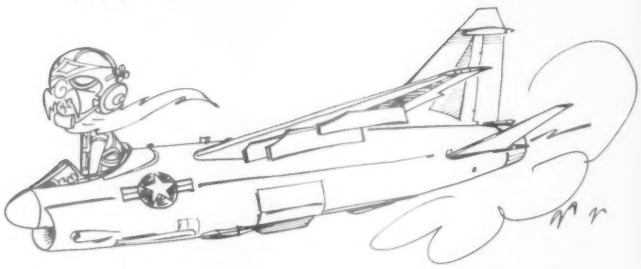
MAY 1977 THE NAVAL AVIATION SAFETY REVIEW



the passages of PILOTS

By LT R. Wilkes
VA-128





DO you remember when you met your first flight instructor? He leaned back in his chair, fingers wrapped tightly around a wing-emblazoned coffee cup, and looked at you as though you were proof positive of the population explosion. He probably wondered if you had ever worn out a razor blade, or if you had been in the Navy as long as he had been in inverted spins.

You gazed admiringly at him and wondered at his apparent lack of fear. You concluded he must either be one-quarter Greek god or was protected by the patron saint of souls who climbed into airplanes with untried nudniks.

So begins, in readyrooms day after day, the career of a Navy pilot. If left to its normal growth process, that career will have an anxious and exciting adolescence, a confident maturity, and a mellow old age – all in a span of 18 to 20 years.

An examination of predictable patterns of a pilot's aviation career will tell us how far we have come and where we are going. It may help some to avoid the pitfalls that can abruptly end not only our flying but our terrestrial existence as well. Let's take a look.

Zero to 100 hours – Infancy. The beginner is awed by his initial attempts to control the forces of nature in an aircraft. He attributes his early skills less to his own talents than to the benign qualities of his aircraft and the prowess of his instructor.

He sometimes feels the machine is in control of the situation and that he must carefully guide the craft so as to

avoid the more frightening hazards and imminent disasters that lurk everywhere. He questions his ability to learn each new phase, but only to himself. His self-doubt will diminish as his skills increase and his confidence builds. He is pleased with his ability to keep up with the program.

He will only be acquainted with the joy of flying in a fleeting sense, because of the tremendous stress and scrutiny of training. If he is to be successful, his need to gain identity as a Navy pilot will enable him to overcome his natural anxieties and commit the necessary effort to win his wings.

100 to 300 hours – Childhood. This period is marked by the sheer joy of flying. To the student pilot, it is wonderful

and unbelievable that he can dance in the clouds and be paid for it. Flying is awe inspiring and completely satisfying.

The pediatric pilot is careful and cautious, not wishing to jeopardize his graduation from training. But he is itching to test himself and beginning to stretch the limits of his envelope.

300 to 800 hours – Adolescence. Like teenagers and driving, the adolescent period of aviation is the most dangerous. The young pilot feels sure of his skills, but his self-confidence now exceeds his experience and ability. He will press to his limits and beyond. Naval Safety Center statistics show this to be the most dangerous period in the life of a pilot, and that 600 hours is the mean time for fatalities primarily caused by pilot error.

Incautious showmanship, overaggressiveness, and outrageously poor judgment are most likely to occur during this time frame. If the new pilot survives this stage, he will have gained many valuable lessons. The most valuable of these is his own limitations.

800 to 2000 hours – Adult. The pilot is now secure in his ability, and justifiably so. His past accomplishments have provided him with self-esteem, confidence, and a necessarily strong ego. No longer does he need to grandstand in the air. He proves himself to himself by significant but commonplace ways such as improving his bombing accuracy or catching more 3-wires.

By now he has attained a position of respect and responsibility in his squadron. He is often in a billet directly involved with safe and correct flying, such as NATOPS or training.

He will occasionally perform a flashy maneuver, but for the purpose of enhancing the sharpness and *elan* of the squadron. He will remain within the bounds of his skill, experience, and common sense. His reactions, stamina, and

analytical abilities are now at their peak. He has matured into a careful and conscientious Naval aviator.

2000 to 3000 hours – Middle Age. As the pilot chronologically passes the passion and impulse of the twenties and enters the more resolute and committed thirties, flying in itself becomes inadequate to satisfy his intellectual and creative needs. He may find it difficult to resist the temptation to rest on past aviation laurels and take flying for granted. This period often involves a postgraduate school, service college, or a nonflying shore tour which seasons his leadership but further erodes his readiness as a pilot. The litany of emergency procedures and aircraft limitations begins to get clouded and confused by the many years of model changes and modifications. New equipment is harder to master when the mind is still in the office, and cockpit changes are especially annoying.

All is not lost, however, for at this time in a pilot's career, the sheer mass of experience and knowledge combine to sharpen the senses until the middle-aged pilot develops an extra degree of perception. He can diagnose the

most subtle signals of danger and rely on instinct to guide him in choosing the correct course of action. His heightened sensory skills keep him out of a hazardous situation before it develops, and his finely tuned instincts make up for the lost concentration of earlier days.

3000 hours and up – Maturity. The aviator still active in flying who has reached this plateau will most likely be secure in his job responsibilities and be able once again to concentrate on flying. If he is a squadron skipper, he has reached a temporary zenith of authority. Once his tour is over, he may become one of the legions of rank-and-file commanders in the bureaucratic pyramid. But while he is still the top dog of his squadron, he is entitled to the choicest slice of the pie when the schedules officer writes his name.

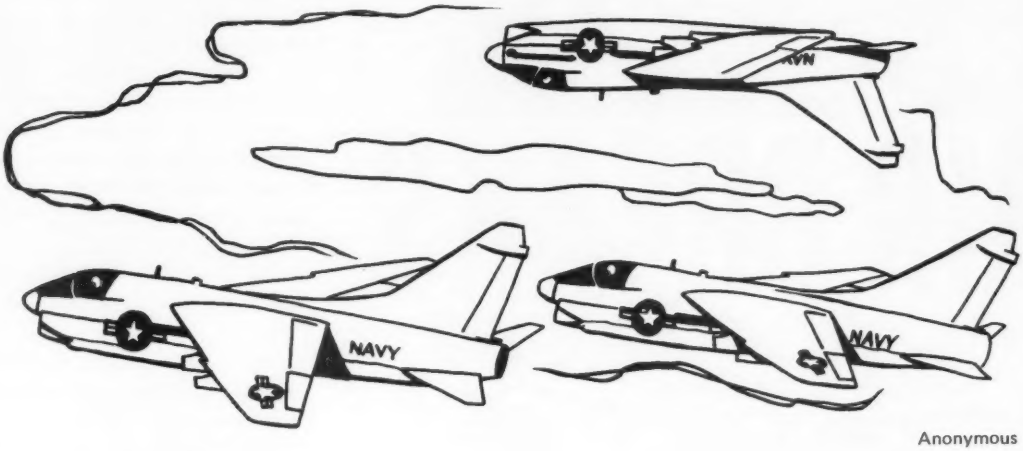
His keenly developed senses and long experience have

honed his talents until his airwork is smooth and effortless. He enjoys being a mentor to the new pilots, gives thorough and informative briefs (laced with colorful sea stories), and leads the flight flawlessly. This is the golden age of a pilot's career.

The NFO. The NFO who works in a cockpit experiences similar although more difficult to delineate phases of growth. His early years are marked by preoccupation with navigation and weapons systems and by a complete but illogical faith in his pilot to return him safely to the ground. The mature NFO not only becomes an expert with his weapons system, but becomes as valuable in the cockpit as any copilot. The teamwork that develops between pilot and NFO provides a quantum increase in operational capability, safety, and the rewards of flying.

The message is clear, and the message is survival. Impetuous, childlike behavior has its place and makes us human. But once we get within 100 feet of an aircraft, only maturity, concentration, and judgment will see us through to old age. I want to be able to tell my grandchildren, "I was a Navy pilot." ◄

What Sierra Hotel *really* means



Anonymous

AS an instructor in the Training Command, I'm sure student Naval aviators occasionally look at me and wonder if I ever felt the way they feel about their indoctrination into the world of Naval aviation. Like all Naval aviators, they are concerned with their professional progress, love life, and image (not necessarily in that order). It is the image of the "Sierra Hotel" Naval aviator that I would like to address.

I was an average student in the Training Command and an average nugget in my first Fleet squadron. My desire to be recognized as an outstanding aviator drove me to do Sierra Hotel flight maneuvers, which I was convinced would win me fame and approval from my peers and superiors. My idol at the time was a lieutenant who consistently performed inverted low passes at the ship. At one AOM, an experienced aviator stood up and said, "At the risk of killing a little of the Tiger spirit, I would like to knock off the low passes to prevent killing the young Tigers." No one could prevent my hero from continuing to make them, and of course, I was Sierra Hotel, so I wouldn't ever "bust it" in these impromptu airshows.

No, my hero didn't crash. But the bottom line is that he was grounded during our turnaround period in CONUS, and a letter of reprimand placed in his jacket just prior to normal separation from the service. Shortly after this, my commanding officer and I had a long man-to-man conversation. He reiterated that he had no desire to discourage the aggressiveness necessary in a combat aviator, but I was getting a lot of bad visibility with higher authority and was in danger of going the same route my hero had. I wasn't convinced, but I cooled it.

My change in attitude was effected when I was an instructor in the RAG. A normally outstanding replacement pilot was joining my ACM flight of three as No. 3 when No. 2 underran. Number 3 had such a high closure rate that he elected to canopy roll over the top, stabilizing just a few feet above No. 2. After much wailing and gnashing of teeth, I directed him to detach and return to base to await my debrief. I was furious. At the debrief, I told him, "When you can hit the bull's-eye on the first run, get an OK 3 on every pass, and handle every possible emergency with knowledge and professionalism, *then* you're Sierra Hotel. Canopy rolls are *not* Sierra Hotel.

"But, sir," he replied, "I've heard that you do canopy rolls, fly low inverted, tuck under breaks, etc." That stopped me. What should I say now – "Do as I say, not as I do"?

That night, after much soul-searching, I found the key to the meaning of Sierra Hotel. The answer is most appropriately worded by the late Willie E. Cumbie in the MAR '76 APPROACH article "Dear Joe": "If you consistently put your ordnance on target, catch the target wire on the ship, and plan all flights with precision, your reputation is made."

When a subsequent commanding officer made me the safety officer in order to control me and told me I could "make it or break it," it made me a believer in the necessity of setting a good example. Now I can hardly wait until one of our student Naval aviators asks me, "Sir, what does Sierra Hotel *really* mean?"

"Well, as a famous Naval aviator once said, 'If you consistently put your ordnance on target . . .' " ◄

AIR BREAKS

High Seat. The pilot of a T-2B, after conducting a thorough preflight, jumped into the cockpit to log a little proficiency time. Since he was going to tool around alone, he had inspected and secured the rear seat in accordance with the checklist.

He taxied out, performed a perfunctory runup, and was cleared to take off. At approximately 100 knots he rotated, and the aircraft flew off about 105 KIAS. During gear retraction he heard a loud bang, followed by persistent rumblings.

He notified the tower he had problems and turned quickly downwind for an approach. None of his gages showed any problems. The pilot thought a canopy seal had blown. He turned off pressurization and placed the RAM emergency switch in HOLD. He checked his mirrors for any open access panels, and in doing so, saw part of the canopy glass had departed.

His pucker factor rose as he noticed the rear seat was abnormally high and the face curtain, still pinned, was vibrating rapidly. He declared an emergency to alert the crash crew, just in case the rear seat ejected or a system malfunction caused front seat ejection.

Although the aircraft was overweight, the pilot made a routine landing and instructed the crash crew to remain clear. He shut down on a taxiway and pinned the front seat and the landing gear. Then he safetied the rear seat by pulling the two gas line quick disconnects. He also pinned the aneroid striker arm and canopy jettison handles.

The broken canopy sections were found on the runway close together. It turned out that there were some loose maintenance parts which allowed the rear seat headrest to contact the canopy. The torque tube had been improperly adjusted while installing the ejection seat during a 210-day inspection.

The aircraft had flown with the rear seat occupied after the inspection. However, on the day of the incident the improper adjustment of the torque tube came to light, with the rear seat empty, when the seat was in the higher position during takeoff.

Away the Hatch! The SAR crew on a 5-minute alert were near their SH-3. The copilot happened to be in the cockpit, a crewman lay in the shade of the aircraft resting his eyes, and the other two were just outside of the magic 50-foot circle enjoying a smoke.

Simultaneously, three things happened: the phone rang in the Alert Room of the building where the SAR crew hung out; a buzzer (easily heard 5 miles away in town) sounded; and a voice over a bull horn, putting out 120 dB, blared "SAR Alert!"

The HAC ground out his cigarette and was only two paces behind both rescue crewmen getting aboard. They launched quickly, received vectors from the tower, and were on their way in less than 3 minutes. The weather was clear and visibility was excellent.

After crossing the coast outbound, the HAC posted lookouts. The crewman at the personnel door was directed to remove the upper hatch to facilitate visual search. He did, and it did. The hatch sailed away in the airstream. A loud bang was heard by all hands, and a few moments later the crewman told the pilot the hatch had fallen into the water.

The copilot at the controls reported that there were no adverse beats or vibrations. The HAC decided to continue the mission which lasted for over 3 hours.

APPROACH is a monthly publication published by Commander, Naval Safety Center, Norfolk, VA 23511. Subscription price: $11.70 per year; $2.95 additional for foreign mailing. Subscription requests should be directed to: Superintendent of Documents, Government Printing Office, Washington, DC 20402. Controlled circulation postage paid at Norfolk, VA.

Postflight inspection revealed damage to tip caps and leading edges of two tail rotor blades. Obviously, the hatch had zapped the blades when it departed the aircraft, but neither the crewman thought it had even come close to the tail rotor blades nor did the copilot feel any kicks or jolts in the pedals.

The result of the near-mishap has resulted in a proposed "Warning" in the NATOPS Manual not to remove the upper personnel door in flight. The next door departure might cause worse damage.

A Potential Catastrophe. The big C-118 was cruising almost 4 miles high over Pacific waters enroute to Midway Island. It was zero dark thirty in the morning and most of the passengers were asleep. The air was smooth and the aircraft had been droning along sweetly for 5 hours.

The TPC (transport plane commander) decided to take a few sniffs of oxygen. After the second inhalation, strong fumes caused him to choke and made further breathing impossible. He disconnected the mask and tried to breathe directly from the hose. However, the situation did not improve. The strong fumes were still present, and he felt a wet substance on his lips.

Cockpit lighting was increased and the TPC discovered the wet substance was hydraulic fluid. He lowered the oxygen hose and allowed 3-4 ounces of hydraulic fluid to drain out. Needless to say, the system was secured.

Upon return to Homeplate, the experts went to work to find out the reason for hydraulic fluid in the oxygen system. The system was drained, lines were disconnected, and both oxygen cylinders were removed from the aircraft. Imagine their surprise when they found about 2 gallons of hydraulic fluid in both tanks.

Squadron oxygen servicing equipment was checked and revealed no contamination present. There weren't any hydraulic servicing fittings available that were compatible with oxygen filler fittings. Further, no hydraulic fluid was found in the filler lines of the aircraft oxygen system. The fluid could have been introduced directly into both cylinders the last time they were removed and reinstalled.

The aircraft had returned from SDLM almost 4 months before the inflight incident, where oxygen cylinders are removed and checked for a proper charge. The squadron records didn't reveal any maintenance on the cylinders since the aircraft had been back. It seems strange that this discrepancy wasn't discovered on the PMCF, at completion of SDLM work, or even during the preflight check prior to takeoff on this flight.

By the Book. When LTJG Craig Stencil and his NFO, LT Sam McCray, lifted off in their RA-5C after a night FCLP landing, they were expecting nothing more than a routine takeoff and another night FCLP approach. However, just after becoming airborne, the starboard engine firewarning light illuminated. Climb was continued straight ahead to a safe altitude, then power was reduced to IDLE on the starboard engine while afterburner was selected on the port engine. Meanwhile, LT McCray had informed the tower and the LSO of the emergency. Since the firewarning light did not extinguish when the starboard engine was placed at IDLE, the engine was secured.

With LTJG Stencil concentrating on flying the single-engine approach in a dirty condition, the NFO was keeping the tower and LSO informed of the situation and reading the pocket checklist to the pilot. An attempted shortfield arrestment was made, but the hook skipped over the arresting wire. After a normal rollout, the aircraft was taxied off the runway and shut down. When power was reduced to IDLE on the port engine, the firewarning light extinguished.

Throughout this incident, the crew demonstrated the professionalism and teamwork that is the goal of RAG training.

The firewarning light resulted from a failed hot air duct in the BLC (boundary layer control). The calm handling of this incident allowed the team to land the aircraft with no damage other than the ruptured hot air duct.

"Strike one, you're out!"

By LT G. R. Banta, MSC
NAS Meridian, MS

THE chances of survival from a disabled fixed-wing aircraft can be compared to a baseball player at bat:

Loss of flight capability – *Strike One!*

Egress by ejection or bailout – *Strike Two!*

Unsuccessful events following egress – *Strike Three!*

Under similar circumstances, the survival chances from a crippled rotary-wing aircraft are:

Loss of flight capability – *Strike One, you're out!*

What are the chances of survival from a disabled helicopter? Marginal! Helicopter airworthiness and versatility have been greatly improved over the past years; however, the crashworthiness and occupant survivability

have remained at a standstill.

In the event of a crucial inflight emergency, the helo's only countermeasure remains autorotation. For a successful autorotation, the pilot must have control of the helicopter as well as have enough altitude and airspeed prior to entry. He needs favorable visibility, weather, and wind conditions, and reasonable landing terrain. Even with all these factors, and provided the pilot is proficient, an autorotation still doesn't guarantee helicopter/crew safety.

Where flight is no longer possible, the only other chance is to bail out. However, helo crews are not required to carry or wear parachutes on most missions, and chances of successful bailout are not optimum. Between 1953 and 1972, only 2 out of 5 Navy helo bailouts that were attempted were successful. In 1973, four crewmen successfully bailed out of an H-3A helicopter (the pilot did not bail out and was lost at sea). The copilot bailed out and got thrown onto the wheel sponson and entrapped between the sponson, strut, and fuselage. He was jerked free by the helo, but his chute did not fully deploy, and he suffered substantial injuries. Therefore, it can be concluded that helicopter inflight escape chance is just a bit better than the toss of a coin. Compare this with an 86 percent chance of successful inflight escape for crewmen flying ejection seat-equipped aircraft.

Navy studies dating back to 1961 indicate that a helicopter inflight escape system would decrease the number of fatalities by one-half. Protection against fire and drowning could reduce the casualty rate even more.

A research and development program was set up in 1964 under the cognizance of the Naval Weapons Laboratory to develop a practical means of helicopter inflight escape. The project engineers based the escape system design on isolating the occupant portion of the fuselage and parachuting it to safety (encapsulation). Drone-configured HUP-2s were retrofitted with this capsule and a remotely-triggered system.

Upon completion of feasibility tests, a proposed technical approach entitled HEPS (Helicopter Escape, Protection, and Survival) was written by Naval Air Systems Command. This system included a crash-resistant fuel system and flotation devices, plus inflight escape capabilities. Redesigned seats, lightweight armor, and impact-attenuating equipment were to be added. Depending upon the type of helo, the HEPS would most likely be implemented by using either a capsule system or an upward ejection system.

The most obvious benefits to be derived from HEPS are the lives it would save and the injuries it would prevent. From a strictly dollars-and-cents standpoint, considerable savings could be achieved by not having to replace pilots killed in survivable accidents. Further, the dollars saved from postaccident costs would be no small amount. Finally, in most helicopter crashes, the majority of the aircraft systems and airframe are destroyed. The HEPS capsule recovery concept could permit recovery of valuable aircraft material and cockpit instrumentation, resulting not only in monetary savings, but also in the return of vital information that could be used in determining accident causes.

Originally, the HEPS was expected to be developed, qualified, and incorporated into the Fleet by the early seventies. However, the project was shaded out (not faded out) by funding cuts. Most of HEPS proposals have been within the state of the art and therefore could be introduced into the Fleet in a relatively short time.

In a report to Congress (June 1973), the Comptroller General urged that the inflight escape system for helos be developed to prevent fatalities. He stated that the GAO brought this matter to the attention of Congress because of its continuing interest in military development affecting the safety of military personnel. It was suggested that Congressional monitoring may be needed to stimulate action. The fact remains that:

- Helicopter crews are still not afforded a chance of survival against serious inflight emergencies.
- The loss of flight control is still a potential threat to helo aircrewmen.

The HEPS program identifies these facts and addresses the reality of future accidents by providing realistic measures to counter such losses, which these accidents would incur. The HEPS program would provide the Navy with a sound investment which would pay off through increased operational capabilities and savings in men, money, and material.

. . . or, we'll have to risk being *OUT after only one strike!*

The author acknowledges with thanks the contributions of LT W. H. Baker in his article on this subject from U.S. Naval Institute Proceedings, October 1970 and information from the GAO report to Congress, June 1973.

NAVAIR has recently reemphasized the need for an escape capability for aircrew/passengers of rotary-wing aircraft. Since initial program development began, the operational concept has expanded to the extent that it now embraces underwater escape problem areas, i.e., automatic separation of escape hatches, escape route lighting, emergency breathing devices, and rapid seat-man separation. Additionally, and in lieu of the inflight escape system, NADC is investigating an in-air descent retardation system which facilitates the use of newly developed crash attenuating seats and restraints. Some allied information was published in the FEB '75 APPROACH article, "Put Parachutes Back in Helicopters?" – Ed. ◄

"Friends, Corsair pilots, and Phantom drivers, lend me your ears. I come here to praise autothrottles, not bury them. The evil ramp strikes do, lives after them. The good pass is oft lost by ease-gun-in-close. So, fly the pass with autothrottles. The noble LSO hath told you 'meatball, lineup, angle-of-attack,' and the LSOs are all, all honorable men. And autothrottles are my friend, faithful and just to me. So practice to let them work; mischief thou art afoot around the carrier."

Who's this guy "Otto Throttle"?

BY LT Jim Ross
VF-51

PROBABLY the only thing naval aviators and people of the Julius Caesar era have in common is raucous happy hours. What's more, Marc Antony's concept of the "unkindest cut of all" probably differs from most carrier aviators' interpretation. To help avoid our modern day version of the unkindest cut of all, the LSOs have been briefing three essential approach variables – meatball, lineup, angle-of-attack – since the first day of FCLP. They stress complete familiarization with these three key aspects of carrier approaches to the point that many prospective tailhookers recite the MB, LU, AOA phrase over and over while jogging, playing handball, etc.

The veteran F-4 pilot, adorned with 1000-hour patches, two cruises under his belt, and a shellback certificate, still appreciates the importance of the old triumvirate. With cruise-imparted knowledge, he realizes that if any one of these approach variables is neglected, a turn in the bolter pattern is a distinct possibility. (Whoever said "You only go around once in life" obviously wasn't a naval aviator.) Most everyone, no matter how motivated, can think of a better situation to be in than the middle of the ocean, at night, looking at the blunt end of the boat, and there ain't no moon! Here he will take all the help he can get.

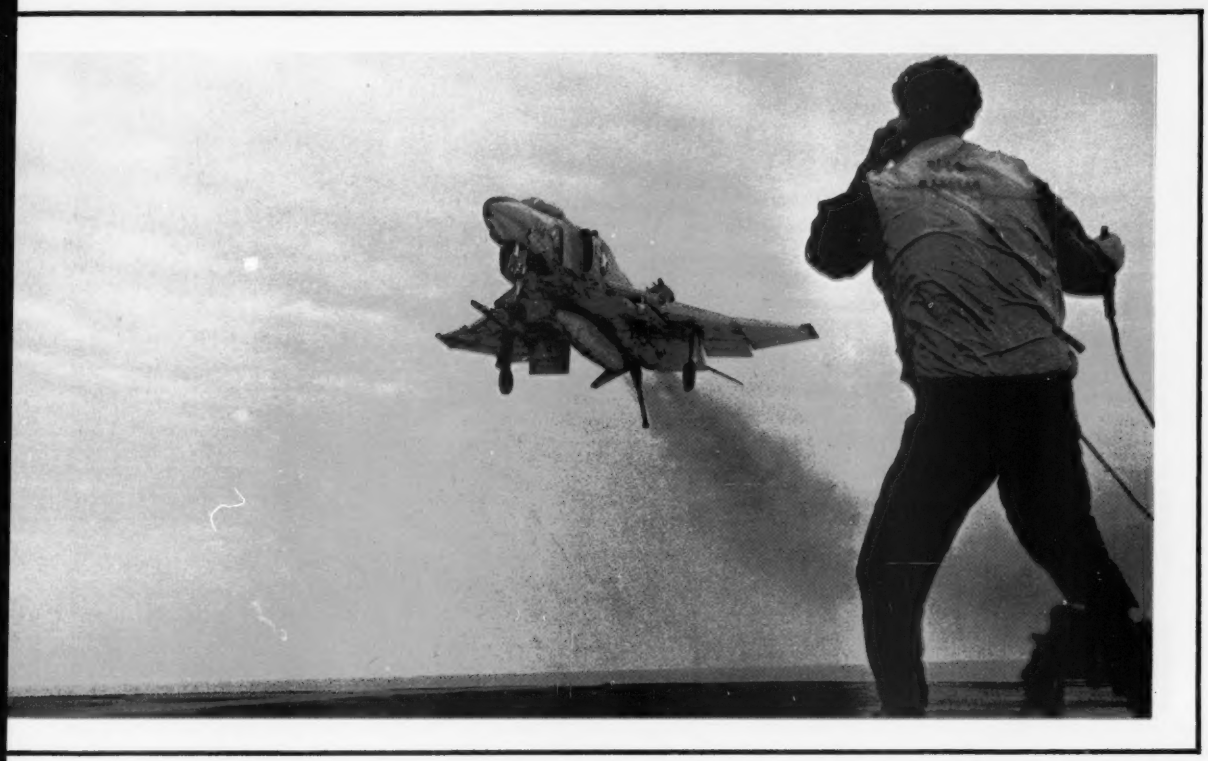
It stands to reason that if you, the pilot, can remove one of the variables in the "big three," you are going to be better off. This is what the autothrottles (APCS – approach power compensator system) do – they greatly aid the pilot in maintaining an onspeed approach. Knowing how to use APC effectively can do a lot to avoid bolters, waveoffs, and other maneuvers that can lead to a "time in the barrel." The following fictitious conversation is used to illustrate a point concerning autothrottles. This conversation takes place between a veteran fighter pilot called "Max" and the nugget replacement pilot whom we shall call "Kid."

Max: I'd like to talk to you about flying around the boat, Kid. The key to a successful approach is mental preparation. By the way, have you ever used autothrottle?

Kid: Gee, Max, I know all about preparation. Why, just last week when my NATOPS Manual fell out of the bookshelf, I read the page it opened to before putting the book back. It just seems like yesterday that I polished my flight boots . . .

Max: The mental preparation I'm talking about begins with anticipating the unexpected. That can be done by having a complete and thorough understanding of CV and aircraft NATOPS procedures, CAG Tactical Notes, ASR, and overhead TACAN procedures, bingo procedures, divert field information, and a thorough knowledge of your aircraft.

Kid: OK, I see what you mean by mental preparation, but



using autothrottles? I thought pilots who used autothrottles fell into the category of people who wear double visor helmets, are afraid of negative G, haven't tried a supersonic loop, and if they have any hair on their chest, it is probably blond.

Max: Is it true your fellow CQ shipmates from the RAG took up a collection so that you could carpet your stateroom? I understand they wanted to get a color that would match your greenie board, but the manufacturer was out of red.

Kid: You have me again, Max. I know I have room for improvement, but I don't want to become dependent on a black box.

Max: Make yourself comfortable, Kid. Max is going to tell you all about APCS, or autothrottles.

Basically, the approach power compensator system maintains the aircraft at optimum angle-of-attack by automatically positioning the engine throttles. If the pitch attitude is being changed by the pilot to hold the aircraft on the desired glide slope, the engine speed automatically stabilizes at a thrust level needed to correct for this change in aircraft attitude. Couple the APCS with an engine that is very responsive to power inputs [as is the J-79 *Phantom* engine], then the end result is a viable black box system that can safely increase boarding rate by lowering pilot workload. As the pilot transitions to the meatball, his concentration is directed to the previously discussed area; i.e., meatball, lineup, and angle-of-attack. The APCS can take care of keeping the aircraft on the proper angle-of-attack so that the pilot only has to monitor it while focusing his attention on "flying the ball" and maintaining lineup.

Kid: I'm beginning to see the light, Max. Autothrottles eliminate one of the three approach variables, thus enabling the pilot to give his undivided attention to two variables vice three. It's the old adage "walking and chewing bubble gum."

But isn't it a little late to convert to autothrottles? My FMLP [field mirror landing practice] periods were directed toward manual passes only, and now we are on cruise.

Max: Of course, the logical process for developing an autothrottle pass is during FMLP. Devote about one-third of the passes to autothrottles. The technique of flying the ball with the stick is readily mastered. Disengage APCS at various points on the glide slope, and practice the transition of going manual. Sit down with the friendly LSO and talk autothrottles. Find out what he is looking for with transmissions such as "attitude" or "power." Realize that a high ball in-close can be finessed by going manual, but trying to recenter it with APCS can lead to disaster. Continued

Although you have not had the opportunity to practice APCS ashore, it can still be mastered afloat by using the following technique as a guideline:

On the first couple of hops, engage APCS in the pattern. Fly autothrottles until transitioning to the ball. This will give you a feel for how the aircraft will respond to various pitch attitudes. It will also build your confidence in the system when you see how easily it maintains onspeed. Next step is to start flying the ball using APCS and going manual [or breaking out] at various points down the glide slope. This will give you a good feel for maintaining a centered ball by varying pitch attitude. As your confidence grows, the breakout point will transition farther and farther down the glide slope. In just a short while, you will be flying autothrottle passes to touchdown. Though let me caution you on one aspect of autothrottle passes. It is so much more simple than flying the manual pass that a pilot must work not to become lackadaisical on the glide slope. Why, you'll soon find yourself volunteering for that late night hop.

Kid: Hallelujah and praise autothrottles! Max, you've made me a believer, but how do I prevent becoming an autothrottle junkie? I still need to be able to fly my manual pass in case the system fails.

Max: There are several approaches to your question, Kid. Basically, if you fly several manual passes to keep up your confidence/proficiency level, there should not be any problem. After all, on a present day cruise, a pilot may be in port for 20 days, but the first day of the line period, he gets thrown out for a day cat trap; pinkie cat/night recovery.

But there is one major problem with flying APCS that we have not discussed. That is, will the squadron maintain the system? The key is command backing! It is necessary for the commanding officer/maintenance officer to stress full system capable aircraft and to fix all APCS discrepancies. To down an aircraft for APCS is ridiculous, but it is necessary to make a concerted effort toward correcting any discrepancies. Our squadron maintains a system status board with the up-to-date status of black box equipment installed in individual aircraft. A quick check of this status board eliminates the surprise factor.

Kid: Max, even though I'm unbeatable in an air-to-air hassle, I realize that my shipboard performance has room for improvement. I also understand the importance of boarding rate in that the sooner the aircraft get aboard, the sooner the ship can turn out of the wind. One thing we fighter pilots want to avoid is a predictable flightpath. Same applies for boat drivers.

Professional preparation is the key to success. Hopefully, my boarding rate will also increase. Your advice has been taken to heart, and I'm very grateful. I'm sure we will be seeing more of each other. By the way, Max, what did you say your last name was?

Max: Kid, we will be seeing a lot of each other this cruise, and the name is Conserve – Max Conserve. ◄

Bravo Zulu

Capt Donald S. Jones, USMC
VMFAT-101

IN the aviation community, flying has often been described as "hours and hours of sheer boredom interspersed with moments of stark terror." Whether or not the pilot involved in the following incident suffered moments of "stark terror" is unknown, but one thing is certain – he was not bored!

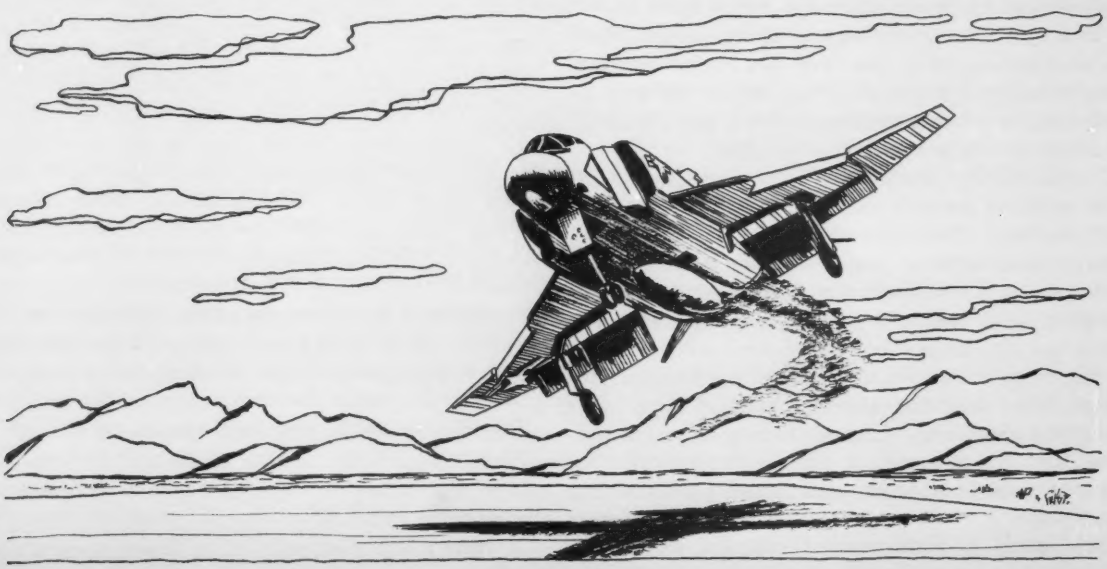
As the instructor and leader of a four-plane cross-country flight, Capt Donald S. Jones, USMC, prepared to land at Luke AFB. Entering the break in his F-4N, he broke to the right. When he attempted to stop his right turn, Capt Jones discovered the lateral control system locked against the right stops. By using full left rudder and both hands on the stick, he was able to reduce the angle-of-bank from 135 degrees to 45 degrees. Even in the 45-degree bank, he was able to control the aircraft only by extreme physical exertion.

The pilot of the second F-4 joined on Capt Jones and told him his starboard spoiler was full up. Capt Jones lowered his gear and flaps and slowed to 19 units AOA. He was still unable to level his wings. Because he was at an acceptable abeam position, he elected to continue his approach in the right turn. As he approached the extended centerline of the runway, Capt Jones again attempted to level the wings but was unsuccessful.

In an attempt to decrease the effect of the spoiler, he gradually increased the AOA to 25 units. At this point the wings were leveled, but simultaneously the nose pitched up and the F-4 began to stall. In lowering the nose to break the stall, the aircraft again began to roll to the right. A slight overshoot of the centerline was corrected by alternately approaching the stall and unloading the aircraft (being continuously between the proverbial "rock and a hard place").

Touchdown was made in a slight right wing down attitude. Landing rollout was uneventful. After shutting down, the stick remained full right, and the spoiler was deflected full up. The cause of the malfunction was a defective spoiler actuator.

Although the incident could have dictated an ejection, Capt Jones' experience, professionalism, and aeronautical knowledge enabled him to overcome the *extremis* situation. His skillful response, quick reactions, and superlative airmanship saved a valuable aircraft and averted possible injury to himself and his RIO. Well done for an outstanding feat! ◄



Separate,

"YOU will stop exactly 6 inches in front of my desk and centered. You will sound off in a loud, clear voice. Alright, who wants to be first? Okay, smilebody, get in here!"

"AOC Smuckatella, D.S. 481-7 . . . "

"Hold it right there, sweetheart. Is it my imagination or not that you are wearing glasses?"

"Yes, sir!"

"Yes, sir what? Is it my imagination, or are you really wearing glasses?"

"Yes, sir, I am wearing glasses, sir!"

"Don't give me a sir sandwich! Since you are wearing glasses, you are an NFOC, not an AOC. Is that clear? Do you think you can remember that, foureyes?"

"Yes, sir!"

"Alright, try it again."

"NFOC Smuckatella, D.S. 481-72 . . . "

"That's enough. Back of the line. And put yourself on report for neck hairs."

"Yes, sir!"

And so begins the NFO's education in the wonders of naval aviation. A little later we find the NFOC at VT-10.

"Okay, gentlemen, one thing to remember always is that you are equal to pilots. I've never met a pilot who had flown with an NFO who didn't say that at one time or another his NFO had saved his neck. You're part of a team, and as such you are as important as the pilot."

Then at VT-86. "You, as the NFO, are just as important to the success of the mission as the pilot."

In the RAG. "This is a tactical jet aircraft with a crew concept. You NFOs are just as important as pilots. You must possess knowledge equal with your pilot's on instrument and emergency procedures, limitations, and SOP."

Why is the NFO continually reminded that he is equal to a pilot? Where did this question of "equality" come from? Probably it begins in recruiting publications – a prospective naval flight officer would not want to join a program in which he would be a "second class citizen" just because he wears glasses. It continues through the training command, perhaps partly as a motivational tool, and partly as a confidence-building device. Perhaps the most important reason for its existence is to instill in the NFO the very important safety concept that he is equally responsible for safety of flight. That sounds like one of the great understatements of all time. Everyone should know that. So why do tactical jet aircraft (with one or more NFO crewmembers) continue to be involved in so many "easily avoidable" accidents? You would think that accidents caused by things like checklists being overlooked or by engine flameouts due to fuel starvation would be less common. Why hasn't the crew concept eliminated these accidents?

My theory covers several points:

1. Through all of his training and for probably half of his fleet tour, the NFO flies with more senior pilots who have a great deal more flight experience. The NFO naturally is aware of this and may grow to depend on his pilot so much that he does not monitor his pilot closely enough. Consider:

- An aircraft was lost because the takeoff checklist was not completed. The aircraft launched with the flaps up. The crew safely ejected. The pilot outranked the NFO by two pay grades. Did the NFO assume that his pilot would never forget something that basic?

2. Over a period of time, the NFO can become conditioned to believe that his pilot will never make a serious mistake. Unfortunately, the confidence that "my pilot would never do anything dumb" does not always stop when the NFO gains equal rank or experience.

- An aircraft flamed out due to fuel starvation 4 nm short of the runway. Contributing causes included: max range profile not flown and both crewmembers failed to use pocket checklists/emergency flip pads. The pilot and NFO were both experienced and of equal rank. Did the NFO believe his pilot knew the bingo profile required and therefore didn't feel it was necessary to look it up?

3. There is one more point in my theory. Some pilots

but equal!

By LTJG D. C. Blanton
Naval Safety Center

may have a lack of confidence in the knowledge of their NFOs.

- The crewmembers of a fighter ejected as a result of loss of control due to a utility hydraulic failure and split flap condition. Contributing factors included: NATOPS was not followed, and poor crew coordination – the NFO did not monitor airspeed and the pilot did not respond to challenges and recommendations made by the NFO.

This is not to say positively that had the pilot listened, the accident would not have occurred. But it seems likely that one of the reasons the pilot failed to respond to the NFO was that he may have lacked confidence in the NFO. Why did the pilot lack confidence in his NFO? Perhaps the NFO may have demonstrated in the past that he did not possess the knowledge required to be an equally knowledgeable team member. Maybe the pilot had preconceived ideas about the value of NFOs in general. The question of why this may exist could be discussed at length. The point, however, is how can it be corrected?

The knowledgeable NFO will be recognized. Pilots will be more inclined to seek out and accept the NFO's advice and listen to what he has to say if he has confidence in his NFO. This brings us back to the nugget NFO flying with experienced pilots so that the NFO can gain the knowledge and experience from one who "has been there." But the NFO won't pick it up through osmosis, nor will the pilot, in most cases, volunteer *all* the information the NFO needs. Therefore, the NFO must aggressively seek it out. He must constantly ask his pilot what he is doing. There is practically an endless list of examples of aggressive learning. Here are a few:

In an ACM engagement, get your pilot to let you call the fight. No doubt mistakes will be made, but it will help immeasurably in increasing your knowledge of what can and can't be done, as well as improving your spatial comprehension of the engagement. The NFO should be much more valuable than just another pair of eyes.

When you go to marshal for a case III recovery, you, the NFO, set up the timing of your pattern. This will sure come in handy when the pilot's stopclock isn't working, and it will help you recognize if his clock is wrong. It also may save some embarrassment.

You, the NFO, initiate checklists. Don't wait till you hear the landing gear come down before you start the landing checklist. What if your pilot forgets and thus you don't get the audio cue of the gear coming down? Are you going to forget, too?

At every opportunity, get your pilot to tell you what he is doing. You want to know what he is doing so that instead of him saying this, you do, "good shot . . . rotate 12 degrees, okay . . . clearing turn starboard . . . gear and flaps . . . 250 knots, out of burner . . .compass is synched . . . check the centerline transfer . . . altitude 300-500 feet, 300 knots . . . 7 DME, climbing turn back over the boat for the tanker."

These examples aren't all-inclusive, but the idea is to get you to think of ones that will help you, and then use them. Each hop should be a learning experience. You want to know what your pilot is doing up front all the time, and to complete the team concept, you also need to tell your pilot what you're doing. And when your experience level exceeds your pilot's, reverse the flow of information. You must constantly strive to expand and equalize the knowledge of your team. If you are to be equally responsible, you have to know what you're responsible for!

My theories and cures may not be correct, but, hopefully, they caused you to think more about your role as an NFO. The physical tasks of a pilot and an NFO are separate; NFOs don't have a stick and throttle, and pilots don't have a radar antenna thumb wheel and a gain control knob. But if they both share an equal knowledge of what the other is doing at all times, and an equal knowledge of SOP, NATOPS, flight rules and regulations, and if they really work together as a team, then yes, one could say they are equal – for safety!

Anymouse

What Is Line Safety?

I WAS a passenger in a taxiing aircraft a few days ago at an NAS when I observed a sight which strikes terror in the hearts of rotary-wing pilots. There was an A-3, with stars flying, parked in front of the tower with no less than a dozen people standing nearby, close to the VIP parking area. I assume some were waiting to embark, and others were there to see them off. All were wearing bridge coats (lots of gold braid), and none of them had eye/head/ear protection.

Obviously, that was not a normal evolution, but the situation worsened shortly. A CH-46 taxied up to within 50 feet of the assembled group, inboard of the A-3, and remained turning up. At no time was any attempt made to make the standees aware of the noise/FOD dangers they were faced with, nor to make the H-46 shut down.

Then things got real ridiculous when the entire group proceeded to the A-3, passing within no more than one rotor diameter of the H-46. Wow!

Who permitted the H-46 to taxi to the spot so close to the waiting group? Why wasn't the H-46 directed to shut down after it reached the spot? Where was the station safety officer? Someone in the group should have directed all to remove their hats, particularly when they went around the H-46 to get to the A-3. Thorough indoctrination at all levels in ground safety is a must. How can we expect our juniors to be safety conscious if seniors aren't?

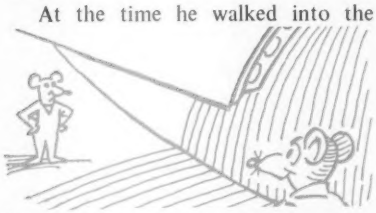
Worriedmouse

Watch Those Doors

THE dangers involved with bomb bay doors on aircraft, particularly the P-3, should be given more emphasis. We had just landed and shut down, and had people unloading the bomb bay luggage rack. There was still some daylight although the sun was setting. If it had been dark, a tragic accident might have happened.

An experienced aircrewman (E6) walked into the bomb bay from the rear of the aircraft. No one else was in the bomb bay at the time. I guess he felt strange about being the only one in there, so he looked out the port side only to see another crewman give the cockpit the signal to close the bomb bay doors. Needless to say, he got out fast!

At the time he walked into the



bomb bay, he didn't notice the other crewman standing outside facing the cockpit, waiting to give the signal to close the doors. The pin had already been pulled, and neither crewman saw the other. This all happened in a matter of seconds.

I feel that two crewmen should be used to open or close the bomb bay doors. One should be stationed behind the doors giving aft clearance, while the other should be forward observing the area before any signal is given to the cockpit.

Save-a-lifemouse

The requirement for two crewmen is unnecessary. Many of the bomb bay openings/closings are done with engines turning. An aft observer would be standing in the midst of high temperatures and wind blast. One properly qualified and attentive observer should be adequate.

The purpose of Anymouse (anonymous) Reports is to help prevent or overcome dangerous situations. They are submitted by Naval and Marine Corps aviation personnel who have had hazardous or unsafe aviation experiences. These reports need not be signed. Self-mailing forms for writing Anymouse Reports are available in readyrooms and line shacks. All reports are considered for appropriate action.

REPORT AN INCIDENT
PREVENT AN ACCIDENT

Keep the Passengers in Back

THE Marine Corps' transport community has an excellent safety record, with one squadron passing the 200,000 accident-free hours gate. However, in the past year I have witnessed complacency setting in and fear a major accident will occur soon.

It has become common policy for nonsquadron pilots – all senior ranking officers – to physically fly our aircraft, especially the KC-130. On a recent overseas detachment, a colonel wanted to fly the aircraft rather than sit in back where he belonged. The squadron commander decided he could fly the aircraft during all phases of flight except takeoff and landing. While flying, he could not maintain level flight.

There have been a number of General officers who actually take off and land, although not NATOPS qualified. This is a direct violation of para 1112 of OPNAVINST 3710.7H. Some of these men have transport experience, but they do not know current emergency procedures.

The solution to this problem is very simple: follow OPNAVINST 3710.7H and NATOPS requirements. If the heavies want to fly the aircraft, let them take the required FAM hops and pass the NATOPS tests. I think that it would be embarrassing, at least, for the transport community to lose an aircraft due to an error by an unqualified pilot.

Qualifiedmouse

Good point. But before readers respond that embarked Flag or General officers are authorized to take command (para 231(a) and (b) of OPNAVINST 3710.7H), let them refer to the note under para 231(b). This states in part: "The provisions of paragraphs 231(a) and (b) shall not be used to circumvent normal NATOPS qualification procedures if the officer desires to physically pilot the aircraft himself."

Droptank Transfer

WHILE on a cross-country flight in an A-4, I followed the practice of securing droptank transfer with 1000 pounds left in the tanks. Vaguely, I remember being told this prevents venting fuel overboard.

Shortly after securing fuel transfer, I started a rather long, low-level route. I became completely engrossed in finding checkpoints, watching my airspeed, and enjoying the view.

My experience contributed to some confusion. About three-quarters of the way along the route, I realized I hadn't checked my fuel. It was down to 1000 pounds internal. I turned the transfer back on, and after seeing internal fuel drop to 900 pounds, it started to rise. Luckily for me, drop transfer still worked.

My fuel for the flight was figured pretty close, so I'd have been hurtin' if I'd forgotten about the fuel in the droptanks. From now on, I'll think twice about securing the transfer and will be fuel conscious 100 percent of the time.

Fuelishmouse

Watch Cap Hazards

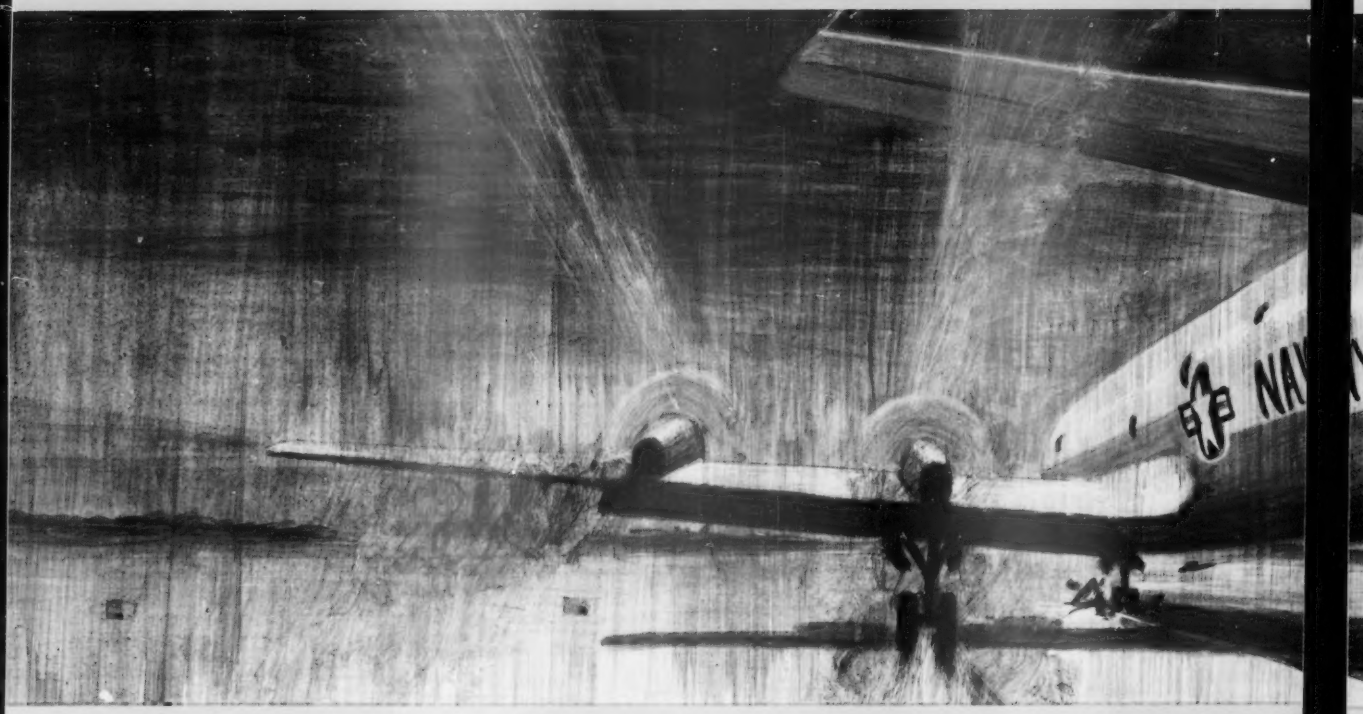
BETWEEN launches and recoveries aboard this carrier, personnel have been wearing watch caps on the flight deck. I think this practice is dangerous. It was brought to the attention of the aircraft handling officer, flight deck officer, air boss, ship's safety officer, and maintenance officer. Finally, the XO put out the official word that watch caps on the flight deck were authorized as long as there weren't any flight operations.

That edict amazed me. I have always ordered men not to wear hats or head covers on the flight line. If the flight deck isn't a flight line, what is it? My concern is what happens to the caps when flight operations take place. I assume the men take them off, but then they go in the pockets, in the cockpits, or down an intake.

Hatlessmouse

A LESSON LEARNED

By Anonymous P-3 Safety Officer



THE P-3 departed NAS Overseas for an overwater flight to NAS Midocean. Two hours into their 4-hour flight, a phone patch was established with the destination airport for a weather and NOTAM update. Reported weather was ceiling 800-foot overcast in light rain showers and wind variable at 15-20 knots. All radar approaches were NOTAMed out. Accordingly, the PPC elected to shoot the VOR approach, which had the lowest minimums available.

Receiving no enroute descent, the aircraft arrived overhead NAS Midocean at FL240 and proceeded to hold. Upon receiving clearance and while in a holding descent to a VOR approach, the crew was informed that an ASR approach was available.

It was readily accepted.

As the aircraft was vectored for the approach, weather was reported as 800-foot overcast, visibility 0.7 mile, in light rain showers. The P-3 broke out just above minimums, approximately 1 mile from the approach end of the runway with runway approach strobe lights visible. At this time, the flightcrew observed the runway clear of obstructions, and the only runway lighting noted was the permanent approach lights. The touchdown was approximately 1900 feet down the runway, and appeared normal until the nosewheel was lowered. At this time a substantial jolt was experienced. Rollout and taxi were normal, but postflight investigation revealed a blown port nose tire, a jammed nose gear uplock roller, and a small hole in the bomb bay door outer skin.

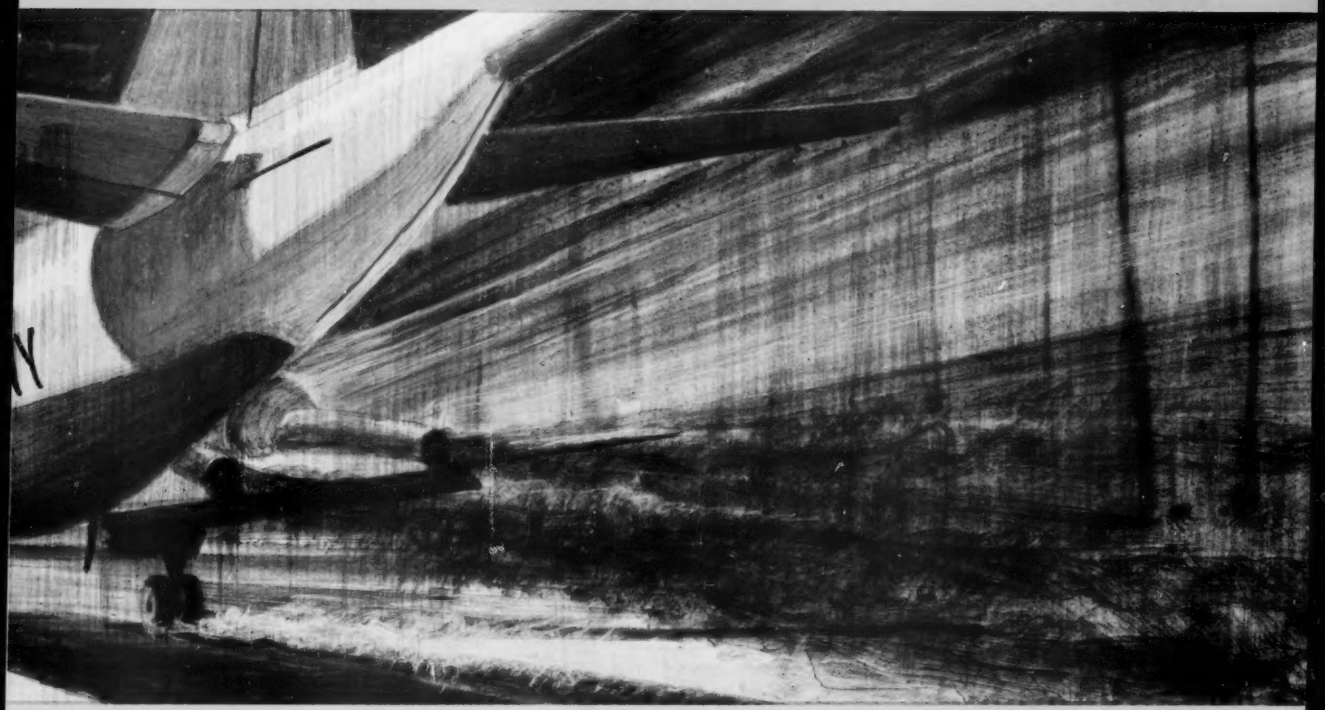
The P-3 had contacted a wooden box, which was one of a string of boxes positioned across the runway, supporting temporary REILS (runway end identifier lights) of the displaced threshold at 2000 feet.

Although not observed in the NOTAM check at NAS Overseas prior to departure, one of the NOTAMS passed to

Setting the stage for a mishap:

- Incomplete NOTAM checks.
- Omission of important NOTAM update information during approach brief.
- Lack of field information provided by approach control.
- No warning by tower personnel of impending short landing problem.
- Bad weather.
- Complacency.

Result: Damage to a P-3 caused by landing short of a displaced threshold.



the crew 2 hours into the flight was that the first 2000 feet of runway were closed. This fact was not mentioned in the review of NOTAMS during the approach brief, and the end result was a touchdown prior to the 2000-foot mark.

It was reported that at no time during the arrival and approach did NAS Midocean advise the crew that the first 2000 feet of the active runway were closed or that obstructions were present at the displaced threshold. In addition, evidence existed that even though tower personnel realized the P-3 could land short, no attempt was made to warn the aircrew.

Notification by either NAS Midocean or the tower of the displaced threshold could have prevented the mishap. However, under no circumstances should the crew be excused for not briefing the entire list of NOTAMS. Both pilot and copilot were familiar with the field, and concern over the adverse weather conditions and impending darkness caused them to lose sight of the "big picture." As the incident report read: "Board findings identified a series of discrepancies in the chain of events, any one of which, if removed, may have prevented this incident." The assumption that controllers will caution aircrews regarding existing field conditions, facilities, and hazards during approach and landing phases is presumptuous complacency.

Fortunately, this mishap did not seriously damage the *Orion.* But the potential was certainly there. By virtue of his position and experience, the patrol plane commander has the responsibility of maintaining the safety of both aircraft and crew. Any help he can get from sources outside his aircraft can certainly be helpful, but he can't *assume* that others are going to keep him out of trouble. Minor miscalculations or mental lapses can result in more serious consequences than occurred in this incident. Hopefully, this mishap will provide a lesson well learned. ◄

Interrupting the sleep/wake cycle:

DANGER!

By LCDR T. M. Cooper, MSC, USN
LCDR W. W. Johnson, MSC, USNR-R
LT D. I. Kirkland, USN

BACKGROUND: P-3 crew scheduled for a 12-hour TORPEX (torpedo exercise) out of NAS North with departure time of 1830 and return at 0630. The sequence of events:

1630 Brief at TSC for 1830 T/O.

1830 T/O uneventful except for freezing drizzle.
Climbout and basic airwork very rough until pilot's instrument scan warmed up.
Enroute, no sweat; PPC elected to fly high (FL290) to save fuel.
Cabin altitude approximately 10,000 feet.

2200 Descent and ONSTA normal.
All four TORPS dropped OK.
Demands of TORPEX gave PPC no opportunity to rest.

0230 Climbout routine (including usual flap with AFB on HF due to bad Wx).
PPC elected to remain in cockpit and fly high (FL280) due to bad weather enroute.

0610 During descent for landing at NAS North, Approach advised that weather deteriorating due to approaching front.
Wx – 400 feet obscured, visibility 1 mile in moderate snow and freezing rain. No braking action given.
Moderate turbulence reported by previous A/C.
PPC switched to left seat late downwind due to relative inexperience of 2P.
Requested GCA and received vectors for pickup on final.
Winds and Wx required horrendous crab. PPC fully occupied just aviating.
On deep base leg, crew finally started approach and landing checklist.
PPC elected to hold gear as they were 14 miles out and intercepting final in heavy precipitation.
At 1600 feet, 8 miles out, descent commenced – still no gear.
C/P reached for checklist but distracted by tower; now preoccupied with Wx update.
PPC thought A/C handling a bit funny but busy keeping on airspeed (±30 knots) and assigned headings while buffeting all over glide slope.
No one noticed "3 up" indicators.
In close and fast, C/P called field at 12 o'clock (300 feet and about one-half mile).
PPC called for flaps and sucked off power.
Suddenly PPC got that sickening "almost gotcha" feeling, when, to his enlightenment, the WHEELS light kept flashing in his face.
Waveoff initiated at less than 100 feet and one-eighth mile.

THIS incident, although fictional, represents an all too frequent series of circumstances. No doubt you can recall a similar situation, one which demanded maximum performance at a time when you normally would be home checking your eyelids for light leaks. The demands of military operations often necessitate a shift or disruption of normal daily routines. Interruption of sleep is perhaps one of the most common disruptions in the military, and it can set the stage for disaster!

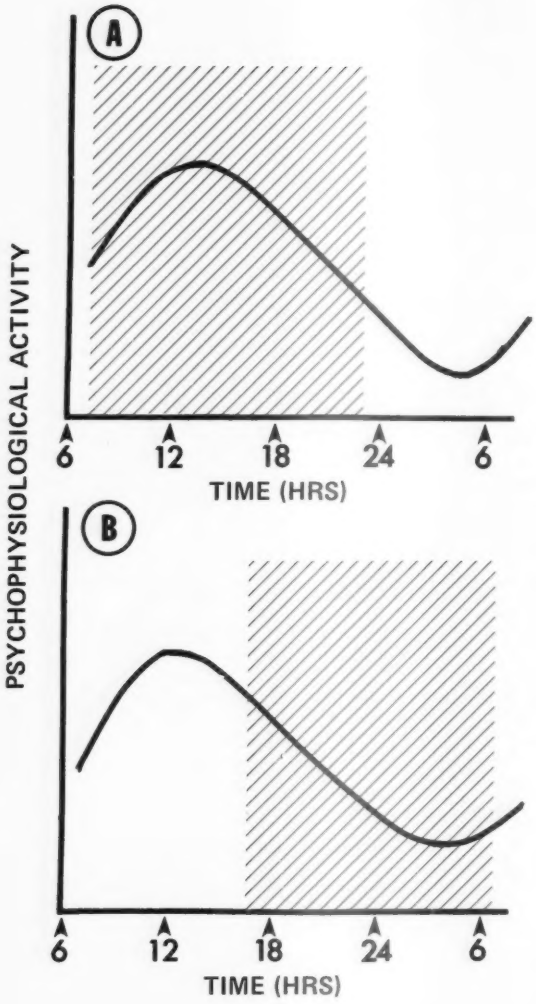
Cyclic or rhythmic phenomena are a universal rule. Practically all living things have cycles in their levels of activity. Our normal sleep-wake cycle is evidence of this fact. In addition, there are more subtle, internal rhythms which closely parallel those of which we are more aware. Like the earth's rotation, these internal cycles occur with clock-like precision and are not totally subject to external controls. Because of their regularity (every 24 hours), these phenomena have been called "biological clocks" or "circadian rhythms" *(circa* and *dies* from Latin, meaning "about one day").

The stability and changeability of these rhythms in relationship to the complexities of military air operations is the focal point of this article. Recent scientific investigations have revealed strong evidence that cyclic internal patterns not only influence normal physiologic functions but also profoundly affect behavior. For example, when our internal clocks are set for periods of sleep, our degree of alertness may be severely reduced. And, as everyone knows, alterations in our normal sleep-wake cycle (phase shifts) are extremely common in military and civilian air operations.

Civilian aviation employees are often able to control, with a certain degree of regularity, abrupt changes in phase shifting. In military operations, however, these shifts are more irregular and less controllable. Thus, flight personnel may be called upon to pull an "all-nighter" without regard for the preceding duty day. It has been demonstrated that such conditions routinely produce an increase in operational errors.

Figure 1 shows psychophysiological performance levels throughout a 24-hour period (circadian rhythm). Cycle A represents the typical activity most humans experience daily. Normally, a person is awake from about 0700 to about 2300, and sleeps the other 8 hours. The curve in the figure represents an average of psychological and physiological activity levels as they vary throughout a 24-hour period. Note that the internal, involuntary level of psychophysiological activity rises and falls in phase with the waking and sleeping periods.

Cycle B shows the same curve with a day-night or



RED = Indicates wakeful state
A = Normal daily activity schedule
B = Imposed day/night shift

Fig. 1

wake-sleep shift, and illustrates one of the major points of this article: Waking activities can be imposed on a circadian sleep period, but it is impossible to break the internal biochemical cycles for a number of days, regardless of whether a person is awake or asleep. Body chemical activities do not readily shift, but rather continue their periodic rhythm. Note that in this situation, the internal psychophysiological activity reaches its peak during the sleeping period and bottoms out during the waking hours.

The probability of human error varies inversely with the psychophysiological activity curve. Therefore, the likelihood of human error increases significantly as the curve bottoms out. During the normal wake-sleep phase (Cycle A), this presents no particular problem, because a person is asleep when the curve is at its lowest values. However, Cycle B shows that errors will increase as the curve decreases in amplitude during the period of imposed wake.

Time zone shifts, such as those experienced in transmeridian flights (jet lag), also affect crew performance. The mechanism and problems are similar to those encountered with the day-night shift shown in Fig. 1.

It is obvious that military flight operations regularly cause both sleep-wake and transmeridian time shifts. The consequences of these shifts are of prime importance to flight safety and accident prevention. Any member of a flightcrew may be called upon to deliver his highest sustained level of performance at a time when, internally or chemically, that member is at his lowest level of potential. This highlights the most significant effect of sleep-wake reversal: an increase in errors will result during the accomplishment of tasks. The more complex the task, the more devastating the effect of imposed phase shifts.

Figure 1 does not point out, however, that crewmembers cannot normally and automatically exchange or shift periods of sleep and wakefulness. A person cannot randomly select any 8-hour period in the 24-hour day to sleep soundly and satisfactorily. We are all in phase with our family members and other people we come in contact with daily.

It takes days to recover or get back in phase after experiencing a shift. Resynchronization often takes more than 3 days for completion after spending 24 hours in a different time zone.

The period of activity preceding a phase shift has an influence on the magnitude of the effects on the shift itself. Imposition of a time shift on an individual who has not fully recovered from another recent time shift will most likely increase the effects of the second shift. Two of these shifts in a 7-day period could be considered excessive.

Personal habits, such as normal eating patterns, further complicate phase shifts as blood sugar levels rise and fall at

new and different times during the 24-hour cycle. Digestion and elimination processes are also altered, creating additional stresses.

Flight operations expose crewmembers to stresses of noise, vibrations, temperature, cabin altitude, sitting fatigue, motion sickness, disorientation, and dehydration, which can be compounded with the problems discussed in connection with a time-of-activity shift.

What can be done to minimize or avoid altogether the problems we have been discussing? Unfortunately, the problem of desynchronization is not easily corrected or controlled because:

- An individual's circadian rhythm is not subject to voluntary change over a 2- or 3-day period.
- Military flight operations demand night and transmeridian missions. A 24-hour-a-day capability is essential to national defense.
- Patrol and transport flights in particular cannot be limited to short duration missions.
- The military flight environment cannot always be made significantly less stressful or hostile.
- Current government military fiscal policies eliminate possibilities of adding men and hardware to ease the problem.

However, suggestions can be made to squadron personnel charged with effectiveness of flightcrews and safety. For example:

- Ensure adequate crew rest periods with differentiation for day-night flights. Prolonged rest time should be allowed for normalization or resynchronization of the circadian system.
- Squadron flight surgeons should be consulted, on a regular or "as needed" basis, regarding personnel and flight schedules.
- Scheduling personnel should be sensitive and responsive to individual tolerances to time phase shifts among flight crewmembers. (There is no such thing as the standard navyman!)
- Flight surgeons, physiological training officers, and safety officers must be familiar with the topic of circadian rhythms. It is also their responsibility to create an awareness of the problem in flightcrews through lectures, discussions, and other appropriate media.

Air-Born. The request was routine: Divert the SAR helo from a training mission and proceed to the Naval Hospital, Whidbey Island. A Navy dependent, Mrs. Doreen Schurman, was undergoing premature labor.

After loading the patient aboard, the H-46 helicopter proceeded IFR to Madigan Army Hospital, accompanied by the attending physician and a corpsman. Enroute, the flight was hampered by strong headwinds and poor visibility. Approximately 35 minutes into the flight, it became apparent that the mission was going to be unique – possibly qualifying for the *Guinness Book of World Records.* The "births" would not wait. Shortly thereafter, Mrs. Schurman gave birth to a 5-pound, 8-ounce girl. Tacoma Approach Control pinpointed Fox Island, the home of Washington state's governor, Ms. Dixy Lee Ray, as the place of birth.

On final approach with the hospital in sight, Mrs. Schurman made SAR history by giving birth to a second girl, 5 pounds, 6 ounces. After landing, the mother and twins were transferred to the hospital where all three were reported doing well.

The APPROACH article on the new glide slope indicator (NOV '76) was great reading for those of us lucky enough to have one. It also provided a glimmer of hope for those who do not. The glide slope indicator is probably the best thing to happen to LAMPS since the demise of DASH (drone antisubmarine helicopter).

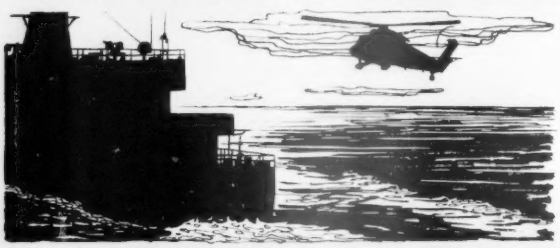
We SH-2 pilots, deployed on a frigate in the Med, have had many opportunities to approach the ship on nights when all about us is a dark shade of black. I've shot approaches with and without the glide slope indicator, and there's no doubt in my mind which one I prefer. The glide slope indicator is indeed a great piece of equipment, but even a rose has thorns. The glide slope indicator is not without its own peculiar array of gotchas. Our detachment, through experience and a few surprises, has discovered some easy ways to put a helicopter in the water. So far, our flight safety record is unblemished, and these tips may help others remain the same.

Glide slope indicator gotchas

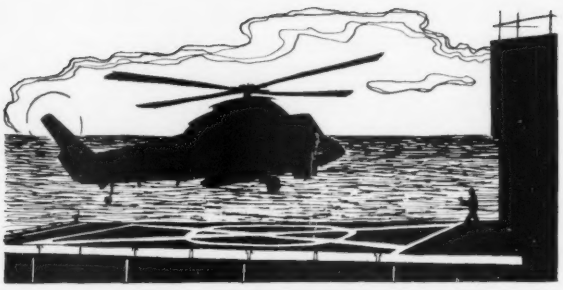
By LTJG John J. Durkin, Jr.
HSL-36, Det 2

Gotcha No. 1 – The glide slope indicator is stabilized by a gyro and is therefore subject to precession. Normally, an error sensing unit will detect the precession at a predetermined point and shut off the unit's light source. So, there you are, halfway through your approach, when it quits. Any attempt to continue the approach may get you too low. Execute a waveoff, settle down, and try again.

Gotcha No. 2 – The glide slope indicator's error sensing unit can and has failed at the same time as the gyro unit. The result is precession without warning in the tower and the glide slope light still on. When this happens, it is entirely possible to fly into the water with a green light (above glide slope indication). *Constant cross-checking of the gages* and a thorough knowledge of glide slope checkpoints versus TACAN or radar ranges *will keep you high and dry when this happens.*



Gotcha No. 3 – The glide slope indicator fail light on a 1052-class frigate is located to the right of and slightly behind the helicopter control officer as he faces the approach path. If the helicopter control officer isn't constantly turning his head to check the fail light, your first indication of a system failure may be your gages.



Summary – GSI-itis. The glide slope indicator IS wonderful. It is a quantum leap for safe, expeditious operations on a small ship. It makes night approaches a "piece of cake" when properly used and maintained. In fact, it's so easy that some pilots may consider it the only way to fly. Herein lies the danger. The glide slope indicator, for all its magic, isn't perfect. It may fail you some night, and when it does, it's back to the old days. Prudent pilots will practice no-GSI approaches under most conditions; then you'll be ready when the glide slope indicator is not. ◄

Lost comm explained

By ACC D. E. Hoffay
Willow Grove

HOW do you hear?

So, there you are on a radar vector for a PAR approach to Homeplate. Approach control has just handed you off to GCA, and you're completing your landing checklist when you hear the controller issue the lost communications procedure:

"If no transmissions are received for 1 minute in the pattern, or 5 seconds on final approach, attempt contact on three four zero point two and proceed VFR. If unable, proceed with the final portion of TACAN runway one five approach."

Now, Approach has just issued the reported weather as W2X 1/2 RF, well below the TACAN approach minima. You turn to your copilot and say, "*&%$ – what a bunch of yo-yos. Don't they know the field is below TACAN minimums? There's no way we can get in without a GCA. What are we supposed to do if we lose comm?"

You do just what the controller told you to do, 'cause that's what the controller is anticipating you *will* do. (And face it, folks, he still has the big eye on you.)

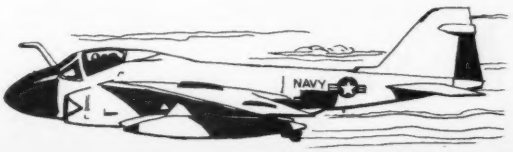
Lost communications procedures are exactly what they imply – procedures to be followed in the event of lost communications. It is not to be confused with missed approach procedures. Ah, that's another story!

If, during the approach, you lose contact with the controller, *simply comply with the lost communications procedures.* Even though the weather is below the minima for the TACAN approach, the controller expects you to continue with the TACAN approach to the missed approach point; to execute the published TACAN missed approach procedure; and then to proceed to your alternate in accordance with FAR 91. This procedure is in effect to guarantee the lost-comm pilot terrain and obstruction clearance during his divert.

Plainly speaking, a lost communication procedure is just a good backup, affording you, the pilot, *positive course guidance* when there's no one to talk to, or no one to hear.

The above procedures are IAW the FAA Air Traffic Control Handbook 7110.65. It states further in para 1152.C.: "If a pilot states that he cannot accept a lost communications procedure due to weather conditions or other reason, request the pilot's intention. The pilot is responsible for determining the adequacy of lost communications procedures with respect to aircraft performance, equipment capability, or reported weather."

If fuel miscalculations or system malfunctions place the aircraft in such a fuel-critical situation that flying the TACAN approach and published missed approach would jeopardize the aircraft, the pilot is in a bonafide emergency in the event of lost comm. In this case, he has the option of "deviating from any rule to the extent required to meet the emergency" as authorized by FAR 91.3. However, since this option bypasses ATC provisions for terrain clearance and traffic separation, it should be exercised only as a last resort. – Ed. ◄



A recent rescue report stated that the helicopter was in position over the pilot approximately 60 seconds after ejection. He was observed to be completely entangled in shroudlines and possibly disabled. The rapid rate at which he was pulled below the water indicates his chute or some other force dragged him down. A tragedy occurred. He wasn't rescued.

SAR problems

MOST SAR missions are routine. Some daylight rescues have been so prompt that pilots who have had to ditch were picked up almost before they even got wet, and were back aboard the carrier in just a few minutes. Other missions, usually at night, take longer, but the success rate when the survivor is found is about the same as the daytime rate.

In the past 6 months, there have been two rescues which have not been routine. One, as indicated in the prologue, was a tragedy; the other was successful, but took an inordinately long time to accomplish.

Certain actions and questionable operations have surfaced from these reports, which all SAR activities and SAR crews need to consider.

The crew of an F-4 ejected following the loss of afterburner in one engine during a catapult launch. The pilot had briefed his RIO to initiate command ejection should the need arise. When trouble occurred after the burner blowout, the pilot, who had his hands full trying to maintain control, gave the command to eject. The ejections appeared to be successful to many eyewitnesses, although a review of video tapes revealed only a brief and perhaps incomplete inflation of the pilot's chute. Both chutes and helmets were seen in the water amongst the scattered debris of the aircraft. However, almost immediately, the pilot's helmet began to disappear below the surface.

The helicopter crew was on top of the RIO in seconds,

and, after receiving an OK from him, went to the pilot. The swimmer was preparing to jump, but before he could go to the aid of the pilot, the pilot went limp and sank rapidly straight down.

The SAR helo then backed down to the area where the RIO was floating. The swimmer jumped in, and quickly both were hoisted aboard the helicopter. The SAR crew returned to where the pilot had disappeared, hoping against hope he'd reappear, but there was no sign of him. They searched for 10-15 minutes and then returned to the ship.

One procedure which has caused controversy came to light after the action. There was a short delay in attempting to put the swimmer in the water to help the pilot. The crewman is required by OPNAVINST 3710.7H to be in protective clothing for flight which includes *Nomex* suit, gloves, helmet, and flight safety boots. When instructed to "rig for rescue," he must remove these items and don his water entry equipment. This evolution takes about 45-60 seconds. The helo was over the pilot before the swimmer was ready to enter the water, and, as previously stated, the pilot disappeared too quickly thereafter.

The second out-of-the-ordinary SAR involved an unusually long time to effect the rescue. The crew to be rescued was flying an F-4 one night. While making a final coupled approach to a carrier, the *Phantom* caught fire. The pilot waved off, and the crew ejected a mile ahead of the ship. It took 40 minutes to pick up the pilot and another 30 minutes before the RIO was rescued by a second helo crew.

The primary SAR crew had been airborne about 3 minutes and were completing their first turn in the plane-guard holding pattern when the F-4 crew ejected. At first, the helo was vectored to a point less than a mile ahead of the carrier's port bow. Shortly thereafter, they were advised that the survivors were on the starboard side of the ship. They flew to the correct spot 7 minutes after the ejections. Four minutes later, they passed over the top of the first survivor. They began a standard recovery approach to a hover and launched their swimmer. It then took 27 minutes to recover the survivor and the swimmer.

The standby helo crew was launched 18 minutes after the ejections. They proceeded to the area but stood off, to avoid interfering with the No. 1 SAR helicopter. Several strobes were visible in the water, and there was some confusion as to which had been deployed by the primary helo crew. Eventually the No. 1 crew recovered one survivor and requested the standby crew to pick up the other survivor.

The primary crew came to a hover directly overhead the survivor instead of slightly aft of him. There was a cockpit communication problem in getting the doppler engaged because of excess radio transmissions and loud comments from the crewman over ICS. NATOPS spells out lowering

the swimmer on the hoist at night, but the swimmer said he felt a tap on his shoulder and jumped out from 40 feet. Within a short time, he reached the survivor and signaled they were ready to be picked up.

The pilot was in a hover a few yards away and felt he could move in more quickly by manually overriding the doppler. As events turned out, he couldn't. Due to the helo's instability and the difficulty of smoothly overriding the system, he couldn't get the hoist to the men in the water. Also, there wasn't any light attached to the end of the hoist cable.

When the pilot realized he wasn't having any luck manually, he moved off, nulled the pots, and then moved back in and picked up both of them.

Some time during the early going, he had been advised by his crewman that the other survivor was at 6 o'clock, about 100 yards. The pilot never heard the report. They missed the opportunity to make a rapid pickup of the second survivor.

After recovering a survivor and his swimmer, the No. 1 helo pilot asked the standby crew to pick up the second survivor. The standby crew found the second survivor, but during their approach to a hover, they saw that doppler display indications were erroneous. However, the radar altimeter was OK, and the pilot was able to hover. The HAC moved toward the survivor, who was about 60 yards to port and a tad behind the helicopter.

The swimmer was lowered by hoist in a sling. The second survivor, bobbing comfortably in his raft, was blown another 50 yards away by rotorwash. He left his raft when the swimmer approached, and both awaited pickup. As with the primary SAR helo, the backup didn't have a light on the end of its cable. The HAC finally maneuvered the sling close enough after many attempts. The second survivor caught it, and they were hoisted aboard.

The rescue reports commented adversely on the lack of actual or simulated night pickups within the readiness training squadron and the squadron training program.

Summarizing these two SAR actions would indicate that all is not well with some instructions, some phases of training, and some SOP. For example:

- There seems to be a conflict between what SAR crewmen must wear when flying routine training flights and what they wear when on plane-guard duty. The time involved in changing from "flight gear" to "rig for rescue" was critical in the first SAR case.

CNO message 031946Z Feb 77 changes SH-3A/D/G/H NATOPS to include that " . . . the rescue aircrewman shall be prepared for immediate water entry." COMNAVAIRPAC message 160227Z Feb 77 states that CNAPINST 3130.1, Change 3 *(Helo Rescue Procedures),* now stipulates " . . . when the helicopter's assigned mission is plane guard, the swimmer will be appropriately attired to allow for deployment within a 30-second response time."

- Shroudline entanglement is an alarmingly consistent killer of otherwise saveable pilots. Some means of freeing men from lines and chutes must be devised other than depending on a shroudcutter.

- SAR crew training, particularly night simulated and actual pickups, needs to be improved. It came to light in the second SAR case that only 2 of 12 pilots in the helicopter detachment had made an actual or simulated night pickup.

- SAR crews involved in night plane-guard duty should ensure there is a light on the hoist cable.

- When sea conditions permit, as they did in the second rescue, consideration should be given to launching a rescue boat. It is essential that all SAR assets be used to effect actual rescues. ◄

Appeal for Photos

SAFETY Publications' photo files to illustrate articles in APPROACH and FATHOM of the LAMPS community are sadly lacking. Please send 8-by-10 glossy photos of working parties in all phases of LAMPS operations. Send to: Editor, APPROACH, NAVSAFECEN, NAS Norfolk, VA 23511.

SAFE APPROACHES IN HELOS

By LTJG Joe D. Cerda
HC-6

CONSIDER, please, a familiar high risk evolution. Your signal is Charlie and you roll out on final, pick up the deck visually, line up correctly, and come back on the power for just the right rate of descent. You make slight, almost imperceptible control inputs as your eyes and the feeling up and down your spine tell you you're settling into a perfect approach. A good closure rate and final adjustments assure the comforting picture outside the cockpit. The pitching deck is firmly met and another safe shipboard recovery is made.

Was that description a recovery of an F-4 or E-2? Not this time. There was no mention of the ball or No. 3 wire. It was a standard helicopter approach and landing with no electronics or mechanics – just experience and seat-of-the-pants to ensure a safe and uneventful homecoming in a hostile sea environment.

Too often when the topic is shipboard landings, one tends to forget that the helo community suffers through (although enjoying the challenge of) pitching decks, small targets, and occasional near-frenzied evolutions of air operations at sea. Too often helo pilots forget they are not making another routine landing to a spot, but to a spot rife with peculiarities and dangers not encountered when landing on *terra firma.*

A few helo pilots seem to have the attitude that it is less imperative for them to plan a perfect approach than for our tailhook brethren. Maybe that attitude is brought on by two powerful, reliable, well maintained engines and the helo's capability to stop in midair and look over the situation.

Occasionally there is the rank showboat. He's the ham-fisted cowboy who booms in low and hot, hauls the helo up in a semiquick stop, allows his airspeed to fall to zero, pulls max torque while looking things over, and wonders why there's no applause when he plants the helo so firmly on deck that the blades droop. Such antics may succeed as long as all systems are "go." The helicopter forgives many delta sierras, but there's another side of the picture, too. Suppose, on a poorly planned short final, or during a hotdog maneuver, one of those usually reliable engines drops off the line. The odds are the helo will also drop – straight down!

Barring mechanical complications, solid technique can save rotorheads some embarrassment and potentially hazardous situations. Planning a normal approach to a rolling, pitching, postage-stamp area can obviate the necessity for gobs of power at the bottom, excessive maneuvering, and scrambling LSEs. Constant practice by pilots and good contact/instrument coordination on day and night ship landings can save some mighty anxious moments on final in the goo or on a pitch black night.

Awareness of power derogation from sea spray during low hovers, and realizing salt's insidious effect on compressors during extended operations can save armpit bruises which occur with frantic applications of collective pitch and rotor droop. Proper attitude and altitude control can facilitate a single-engine landing or a graceful waveoff with just the loss of an engine instead of crushed damage control parties and helo crash alarms going off.

Even as fixed-wingers practice perfection in the art of getting aboard, it behooves helo pilots to do the same thing. Everyone knows that the good-natured rotary wing tends to disintegrate when taken for granted or pushed too far.

The LAMPS community has the advantage of the new glide slope indicator to assist in their landings, but H-46 shipboard landings are still made without the benefit of mechanical landing aids. ◄

A SHAKY DESIGN

By LTJG W. W. White
VRC-40

THE idea was planted at the Navy's Aviation Safety School in Monterey. A commander was collecting data on physiological design factors when he asked, "What are the three worst design features in the airplane that you fly?"

The question really hit home! Ever since I had checked into my squadron some years ago, I'd been teed off because someone had put the stall shaker in front of the turn needle and balance ball! The airplane hadn't been designed that way. But somewhere in the *Cod's* long lifetime, and many overhauls, the stall shaker had been installed, blocking the view of the turn needle.

I asked several other pilots about it, and there seemed to be a consensus that no one liked the stall shaker's position, but nothing could be done about it. After all, the Navy had been flying the C-1A for 20 years, and nothing has been done about it! So I set out to try and develop a neck that would be the envy of Ichabod Crane.

I'd been flying the *Cod* a couple of years, with a well developed neck, when the commander pulled my head out of the sand with his question.

I returned from safety school to my squadron even more discontent with the stall shaker. Still, I was willing to fly an airplane in which I could not see the needle and ball. I thought the C-3 would soon arrive, and I could join the group of pilots that fly with their feet flat on the deck. Besides, no one had crashed yet because of it. Therefore, I probably wouldn't either.

Then things began to happen. I had to ride through my share of single engines, particularly around the boat. If that wasn't bad enough, the decision was made that there wasn't going to be any C-3, and the C-1A was slated to be around for many years!

But the real eye-opener was a little slow in coming. We were returning from about 8 hours of flying, just as it was getting dark, when the controller said, "Are you ready to copy NAS Norfolk weather?"

"Roger, go ahead," answered my trusty copilot.

"Navy Norfolk is 500 obscured, three-eighths of a mile in drizzle and fog with wet runways."

"Hmmm, not too good. Guess I'll earn my flight pay."

Everything was fine until just about 900 feet. Then the airplane swerved, and the power dropped on the starboard engine . . . Oh, great, I'm losing my starboard engine! I added power to see for sure which engine had failed . . . as both my copilot and I frantically searched the gages for what was happening. It looks . . . OK! So in the few seconds that had transpired, the above "glidepath and heading calls" had been second priority to my engine problem.

As I was able to settle back and react to the final controller, he was starting a new spiel.

"Disregard your directional indicator . . . make half standard rate turns . . . turn right . . . "

As my eyes searched for the turn needle and *found nothing,* I felt really helpless! In the next second, my mind started to correlate what my eyes were seeing, and I established my glidepath and locked back on the gyros. So, somewhere about one-half mile, my copilot called "Field in sight." My breath came a little easier.

In maintenance control, I wrote up the stall shaker as "blocking out the needle and ball." The next day I was told nothing could be done about it . . . that's the way it was made.

Having nearly pranged my kazoo, that wasn't good enough! Investigation revealed that of the squadron's eight airplanes, six had the atrocious stall shaker, and two were OK. The two that were OK had a completely different bracket than the others. Let's order the better ones . . . Not in the supply system . . . Let's have them made!

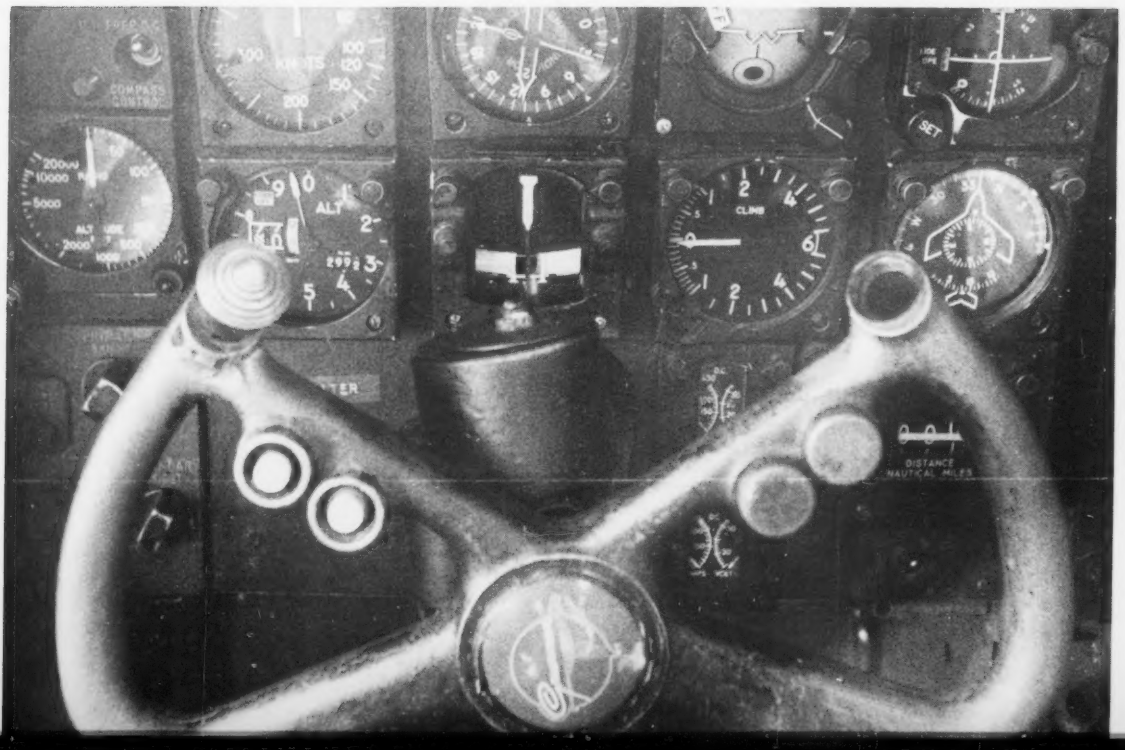
A call down to NARF Jacksonville produced the original Grumman C-1A blueprints showing the correct installation of the shaker. This enabled our squadron to fabricate locally the correct bracket. So, several months after the fact, our pilots are again afforded the luxury of the needle and ball – "pretty much" a necessity for those of us that fly with our feet on the rudders!

Any poor design features in your airplanes? Maybe you can do something. What do you think?

Modification on the local level was OK in this situation since the original design had been unofficially altered earlier. However, if situations arise where a modification to your aircraft seems like a good idea, the correct procedure is to submit an aircraft discrepancy report (OPNAV Form 4790/48), detailing the problem and recommended solution. – Ed. ◄

The stall shaker with the old mounting bracket obscures the turn needle and ball.

The original bracket permits an unobstructed view of the turn needle and ball.



Letters

Re "Total Aircraft Performance"

Burbank, CA – I would like to throw in my views on subject article in the JAN '77 issue of APPROACH. I always attempt to defend P-3 performance where I see fit, since I was involved in the performance tests for the P-3 NATOPS Manual. The incident in question is the low rate of climb *(150-200 fpm at 160 knots – Ed.)* as stated out of ANG Buckley Field by a VP crew.

I became the prime target on why the P-3 could let the crew down this badly. With all of the known facts in hand, we feverishly looked into our answer-all goldfish bowl only to discover "something is missing."

The facts were:

Field elevation:	5663 feet
R/W length:	11,000 feet
Aircraft G/W:	126,000 pounds
OAT:	94°F (9200-foot density altitude)
SHP at 80:	3300/engine

If one just takes the SHP at 160 knots (assuming 100 percent engines), gross weight, and pressure altitude, we come up with at least 1000 fpm rate of climb. Throw in the unusual hot day effects, and we come up with approximately 900 fpm rate of climb in the "B" drag configuration. If we extrapolate the thrust loss of the critical No. 1 engine at this point, we should attain at least a 400-foot positive rate-of-climb capability (not negative). SHP and airspeed dictate the climb rate as a function of weight and drag configuration.

If a P-3 with a known weight and SHP has a rate of climb of 200 fpm or less, we have to extrapolate to other parameters such as a lower airspeed. This would produce a higher angle-of-attack, which means a lower drag/thrust ratio – thusly, low rate of climb. On the other hand, if 160 KIAS is correct, then we extrapolate the SHP as being somewhat less than normal rated power, so again we have the low drag/thrust ratio. Now, if we jack up the weight significantly, we can again adjust down to this low rate of climb.

In summary, entering the known facts into the Section XII performance schedule, we cannot drag out this low rate of climb unless we add a number of square feet of flatplate airframe area for drag. Total aircraft performance for any given condition can be extracted from all approved NATOPS performance manuals; the only drawback is you have to fly it accordingly.

As a final point, I might add a little something that does not appear in the P-3 NATOPS. During heavy weight, high altitude, or unusual environment, including turbulent air, it's wise to change your flap retraction procedure. The flaps should be retracted to the MANEUVER position after attaining 160 KIAS, and then fully UP after 180 KIAS. This will keep the P-3 on the positive side of the thrust/drag hook.

J. Christiansen
Chief Pilot, Military Flying
Lockheed California Company

• Your defense of the P-3B is acknowledged. The P-3B's performance in the incident should have been much better than it was. However, for operators of the P-3A, take note: The conditions which existed would not have produced any better performance than stated in the article.

Discredited Credit

Indianapolis, IN – As a former member of Air Group EIGHT, I would like to point out an error concerning the cover credit of the MAR '77 issue of APPROACH. On pg. 32 you state "VA-83's deployment to the Med with F-3Hs in March 1956 was the first deployment of a missile squadron." This statement contains a gross error! VA-83 did deploy with Sparrow missiles as you indicated, but they were flying the F-7U *Cutlass* – not the F-3H *Demon*. Consequently, the F-3H was not the first jet aircraft equipped with Sparrow missiles.

Air Group EIGHT at this time included VF-61, VF-82, VA-83, and VA-85. VF-61 was equipped with F9F *Cougars;* VF-82 was equipped with F2H *Banshees;* and VA-85 was equipped with the AD *Skyraider.* After the Med cruise, Air Group EIGHT returned to NAS Oceana, and a new training cycle was begun. All of the squadrons received new commanding officers, and a few months later, three of the squadrons received new aircraft. VF-61 and VF-82

received F3H *Demons*, and VA-83 received A4D *Skyhawks*. VA-85 continued to fly their AD *Skyraiders* for several years. By the way, the new commanding officer of VA-83 was a young commander named James H. Holloway III.

CDR Wells R. Moorehead, USNR-R

P.S. Your critic was a member of VF-82.

SOP/TACNOTES/NATOPS

NAS Norfolk – LCDR Roop's excellent article, "Black Nights and Glassy Seas," in the DEC '76 APPROACH has identified a significant problem that multisensor ASW/utility/SAR mission capability has brought. Most people assume that because a helicopter is out flying at night that it can perform a night SAR. The article makes clear that this is not necessarily so.

Courses of action or procedures to use in this situation should indeed be standardized, but why not publish such procedures in the NATOPS manual rather than in the form of squadron SOP and air wing TACNOTES?

Procedures should be submitted to the model manager, considered at a NATOPS conference, and those approved published in the NATOPS flight manual. In this way we could all use the best procedure, and the problem would gain official recognition in the "blue bible."

W. C. Vivian, NAVAIRLANT
H-3 NATOPS Evaluator

Time for Attention to LSOs

FPO, New York – Lieutenant Saunders' article, "LSO – The Forgotten Man" (FEB '77 APPROACH), makes some excellent points concerning the state of the LSO art. Additionally, this is the second outcry from the LSO ranks in the past 18 months in APPROACH (the first being LCDR Webb's article, "LSOs – An Endangered Species," OCT '75 APPROACH). Perhaps it is time for some action-oriented attention to LSOs from high level safety managers!

According to LCDR Sumnick ("The LSO Phase One School," SEP '76 APPROACH), some progress has resulted from LCDR Webb's outcry. LT Saunders, however, indicates not enough has been accomplished and suggests innovative solutions, i.e., utilizing state-of-the-art technology as well as improved training/management to maintain properly this critical phase of the CV/CVW team.

Perhaps by improving the ability of the LSO to function, we can make further progress in controlling the mishap rate during the CV landing phase. As a carrier aviator, I hope LT Saunders' article does not languish on the pages of APPROACH.

LT Rick Purnell
VR-24

Follow the MIM

NAS Kingsville, TX – In the FEB '77 APPROACH article "Disconnected Skyhawks," reference is made that the MIM does not call for a control sense check subsequent to performing maintenance on the aileron trim tab. The appropriate paragraphs in the MIM relating to maintenance and rigging of the aileron trim tab do indeed require a control sense check as part of the maintenance in this area. Additionally, a check for proper direction and amount of travel is required. The error committed was not following the MIM and not completing the entire scope of the job as required by the MIM. There are a couple of errors in the MIM, but not to the extent that the rigging of the aileron trim tab could not have been completed satisfactorily. Ya gotta read paragraph one, do paragraph one; read paragraph two, do paragraph two; read paragraph three, etc.

CDR B. J. Loonam
COMTRAWING TWO Staff

To All Who Investigate, Endorse, Read, and Judge

NAS San Diego, CA – Refer to Capt Ray Norton's letter, "Another Way," on the Letters page of the JAN '77 APPROACH. He was not aware that the aircraft I was flying did not have AFC 222 incorporated. When I had the emergency, I did not have the option of using emergency throttle.

The point is, it pays to have the facts before making statements. It happens too often at all levels. His letter gives me an excuse to air an opinion. I'll borrow from "Tenacious Ted" in a recent WESTPAC safety bulletin:

> The purpose of mishap investigation is to determine causes and, more importantly, to determine actions necessary to preclude recurrence of a similar mishap.
>
> The investigation must be factual, objective, and thorough. The investigating officer or AMB must not be prejudiced by allegiance to command or individuals, not coerced to report anything other than the facts and their contribution to the final event. To do otherwise is to invite a similar or more serious occurrence and is unacceptable in any professional organization.
>
> It is incumbent upon those commands reviewing and endorsing investigations to ensure that the objectives of the investigation are satisfied, and reconvene the investigating body, or restructure the facts into proper context. Be professional in recognizing human frailties after the fact, as well as compensating for them before the fact.

LT M. B. Knudsen
HC-3

B/Ns Are a Necessity

FPO, San Francisco – In your reply to LCDR J. J. Bloedorn's letter in the FEB '77 APPROACH, you imply that the NATOPS requirement for a B/N on all A-6 flights is an arbitrary one. The requirement exists because the B/N is an integral part of the aircraft and its mission – be it an all-weather/night strike into enemy territory or a functional checkflight. The B/N is not to be considered a part of the weapons system that can be inserted or removed from the aircraft without affecting its characteristics and capabilities. He is not only a bombardier and a navigator, but also a copilot. Because of this, the B/N is not only a requirement, but a necessity on all flights. Just ask an A-6 pilot.

LT James M. Burin
VA-196

Vital Services

NAS Whiting Field – In the MAR '77 APPROACH article entitled "RVAH: The Heavy Is Dead, but the Recce Is Alive and Flying," LTJG Daniel M. Carroll asks a rhetorical question that shows extreme tunnel vision and therefore needs an answer. He asks, "But what other community can continue to provide vital services from its mission whether there's a war on or not?"

I submit to LTJG Carroll that the entire helicopter community provides vital services too numerous to delineate here, both in peacetime and at war. We were doing so before the A-5 was on the drawing boards and will be doing so when all of them are parked at Davis-Monthan.

The A-5 isn't the only aircraft providing services today; a fact anyone will appreciate if he ever gets hoisted in a horse collar.

LT T. P. Dewhirst
Helicopter Standardization Officer
VT-5

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approach

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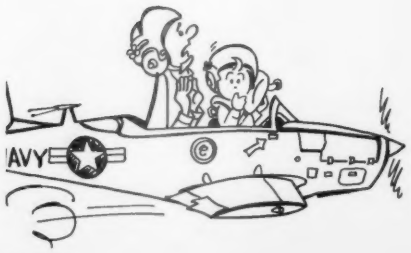

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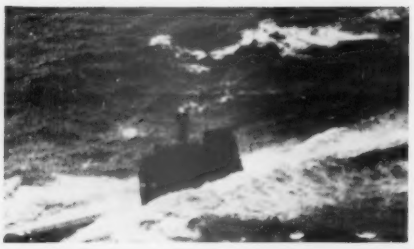

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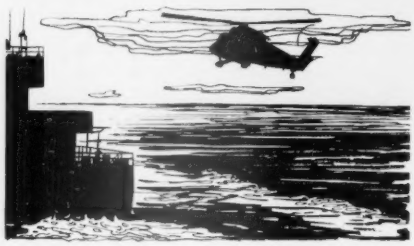

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A Naval Safety Center Publication

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PRINTING/Issuance of this periodical approved in accordance with Department of the Navy Publications and Printing Regulations, NAVEXOS P-35. Library of Congress Catalog No. 57 60020.

CREDITS/This month's cover by staff artist Blake Rader portrays the sub-hunting SH-2F *Seasprite* carrying out its mission of protecting the sealanes leading to our shores.

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☆ U.S. GOVERNMENT PRINTING OFFICE: 1977—735-002/5

VR-21 hangs it up

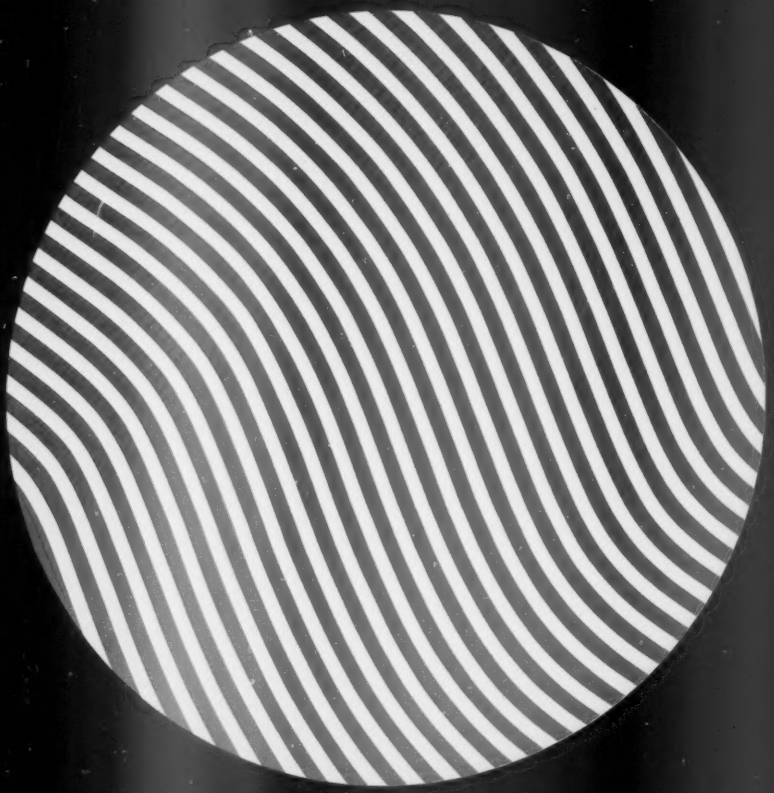
Pineapple Airlines Retires

WHEN Navy *Liftmaster* C-118 (BUNO 131609) took off from NAS Barbers Point on the morning of 25 February 1977, an illustrious era of Naval aviation came to an end. With that flight to Point Mugu, CA, VR-21 wrote "The End" to more than 20 years of transport operations from Hawaii. The squadron was decommissioned on 30 March 1977. The legacy which VR-21 left behind is a record of 358,918.3 accident-free flight hours. In their CO's words: "It is the last wish of VR-21 that its safety record be broken by every squadron in the Navy."

The squadron was commissioned in July 1957 at Barbers Point, and since that time, its aircraft have transported hundreds of thousands of passengers and tons of freight, completing more than 70,000 missions in support of combat and peacetime operations. In addition to the remarkable number of accident-free flight hours, the squadron can point with pride to an unblemished 20-year record of never suffering a major aircraft accident. All VR-21 personnel, past and present, can stand a little taller with the knowledge that 358.918.3 hours represent a truly enviable safety record.

Well done, Air Transport Squadron TWENTY-ONE!

"I file VFR. There's always a HOLE!"



His quotable last quote.